



United States
Environmental Protection
Agency

Solid Waste And
Emergency Response
(5201 G)

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May 1995

SUPERFUND:

Progress at
National
Priority
List Sites



MICHIGAN 1995 UPDATE



Printed on Recycled Paper

How to Use the NPL Book

The site fact sheets presented in this book are comprehensive summaries that cover a broad range of information. The fact sheets describe hazardous waste sites on the NPL and their locations, as well as the conditions leading to their listing ("Site Description"). The summaries list the types of contaminants that have been discovered and related threats to public and ecological health ("Threats and Contaminants"). "Cleanup Approach" presents an overview of the cleanup activities completed, underway, or planned. The fact sheets conclude with a brief synopsis of how much progress has been made in protecting public health and the environment. The

summaries also pinpoint other actions, such as legal efforts to involve polluters responsible for site contamination and community concerns.

The fact sheets are arranged in alphabetical order by site name. Because site cleanup is a dynamic and gradual process, all site information is accurate as of the date shown on the bottom of each page. Progress is always being made at NPL sites, and the EPA periodically will update the site fact sheets to reflect recent actions. The following two pages show a generic fact sheet and briefly describe the information under each section.

How Can You Use This State Book?

You can use this book to keep informed about the sites that concern you, particularly ones close to home. The EPA is committed to involving the public in the decision making process associated with hazardous waste cleanup. The Agency solicits input from area residents in communities affected by Superfund sites. Citizens are likely to be affected not only by hazardous site conditions, but also by the remedies that combat them. Site cleanups take many forms and can affect communities in different ways. Local traffic may be rerouted, residents may be relocated, temporary water supplies may be necessary.

Definitive information on a site can help citizens sift through alternatives and make decisions. To make good choices, you must know what the threats are and how the EPA

intends to clean up the site. You must understand the cleanup alternatives being proposed for site cleanup and how residents may be affected by each one. You also need to have some idea of how your community intends to use the site in the future, and you need to know what the community can realistically expect once the cleanup is complete.

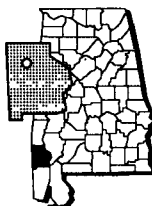
The EPA wants to develop cleanup methods that meet community needs, but the Agency only can take local concerns into account if it understands what they are. Information must travel both ways in order for cleanups to be effective and satisfactory. Please take this opportunity to learn more, become involved, and assure that hazardous waste cleanup at "your" site considers your community's concerns.

Provides the dates when the site was Proposed, made Final, and Deleted from the NPL.

Identifies the Federal, State, and/or potentially responsible parties taking responsibility for cleanup actions at the site.

Summarizes the actions to reduce the threats to nearby residents and the surrounding environment and the progress towards cleaning up the site.

EPA ID# ABC0000000



Other Names:

[illegible]

XXXXXXXX XXXXXXXXXXXX XXXXXXXX
XXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXX

Proposed: XX/XX/XX
Final: XX/XX/XX

[illegible]

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Site Repository

Lists the location of the primary site repository. The site repository may include community relations plans, public meeting announcements and minutes, fact sheets, press releases, and other site-related documents.

A

SITE DESCRIPTION

This section describes the location and history of the site. It includes descriptions of the most recent activities and past actions at the site that have contributed to the contamination. Population estimates, land usages, and nearby resources give readers background on the local setting surrounding the site.

B

THREATS AND CONTAMINANTS

The major chemical categories of site contamination are noted, as well as which environmental resources are affected. Icons representing each of the affected resources (may include air, groundwater, surface water, soil, and contamination to environmentally sensitive areas) are included in the margins of this section. Potential threats to residents and the surrounding environments arising from the site contamination also are described.

C

CLEANUP APPROACH

This section contains a brief overview of how the site is being cleaned up.

D

RESPONSE ACTION STATUS

Specific actions that have been accomplished or will be undertaken to clean up the site are described here. Cleanup activities at NPL sites are divided into separate phases, depending on the complexity and required actions at the site. Two major types of cleanup activities often are described: initial, immediate, or emergency actions to quickly remove or reduce imminent threats to the community and surrounding areas; and long-term remedial phases directed at final cleanup at the site. Each stage of the cleanup strategy is presented in this section of the summary. Icons representing the stage of the cleanup process (initial actions, site investigations, EPA selection of the cleanup remedy, engineering design phase, cleanup activities underway, and completed cleanup) are located in the margin next to each activity description.

E

SITE FACTS

Additional information on activities and events at the site are included in this section. Often details on legal or administrative actions taken by the EPA to achieve site cleanup or other facts pertaining to community involvement with the site cleanup process are reported here.

Guide to the NPL Book Icons

The “icons,” or symbols, accompanying the text allow the reader to see at a glance which environmental resources are affected and the status of cleanup activities at the site.

Icons in the Threats and Contaminants Section



Contaminated *Groundwater* resources in the vicinity or underlying the site. (Groundwater is often used as a drinking water source.)



Contaminated *Surface Water and Sediments* on or near the site. (These include lakes, ponds, streams, and rivers.)



Contaminated *Air* in the vicinity of the site. (Air pollution usually is periodic and involves contaminated dust particles or hazardous gas emissions.)



Contaminated *Soil and Sludges* on or near the site. (This contamination category may include bulk or other surface hazardous wastes found on the site.)



Threatened or contaminated *Environmentally Sensitive Areas* in the vicinity of the site. (Examples include wetlands and coastal areas or critical habitats.)

Icons in the Response Action Status Section



Initial, Immediate, or Emergency Actions have been taken or are underway to eliminate immediate threats at the site.



Site Studies at the site to determine the nature and extent of contamination are planned or underway.



Remedy Selected indicates that site investigations have been concluded, and the EPA has selected a final cleanup remedy for the site or part of the site.



Remedy Design means that engineers are preparing specifications and drawings for the selected cleanup technologies.



Cleanup Ongoing indicates that the selected cleanup remedies for the contaminated site, or part of the site, currently are underway.



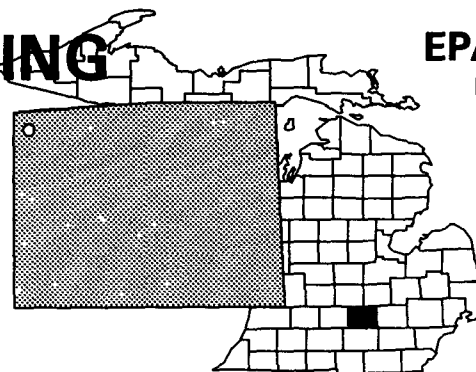
Cleanup Complete shows that all cleanup goals have been achieved for the contaminated site or part of the site.

EPA ID Number	Site Name
MID006522791	ADAM'S PLATING
MID980504450	ALBION-SHERIDAN TOWNSHIP LANDFILL
MID006007306	ALLIED PAPER/PORTAGE CK/KALAMAZOO RIVER
MID006029102	AMERICAN ANODCO, INC.
MID002931228	ANDERSON DEVELOPMENT CO.
MID980794382	AUTO ION CHEMICALS, INC.
MID980791461	AVENUE "E" GROUND WATER CONTAMINATION
MID017188673	BARRELS, INC.
MID005107222	BENDIX CORP./ALLIED AUTOMOTIVE
MID000605717	BERLIN & FARRO
MID006030373	BOFORS NOBEL, INC.
MID980410617	BURROWS SANITATION
MID062222997	BUTTERWORTH #2 LANDFILL
MID980678627	CANNELTON INDUSTRIES, INC.
MID980274179	CARTER INDUSTRIALS, INC.
MID980794663	CEMETERY DUMP
MID980794390	CHARLEVOIX MUNICIPAL WELL
MID980477079	CHEM CENTRAL
MID980002273	CLARE WATER SUPPLY
MID980608970	CLIFF/DOW DUMP
MID980504716	DUELL & GARDNER LANDFILL
MID005068143	ELECTROVOICE
MID980609366	FOLKERTSMA REFUSE
MID980410740	FOREST WASTE PRODUCTS
MID980410823	G & H LANDFILL
MID017418559	GRAND TRAVERSE OVERALL SUPPLY CO.
MID980794531	GRATIOT COUNTY GOLF COURSE
MID980506281	GRATIOT COUNTY LANDFILL
MID017075136	H. BROWN CO., INC.
MID980794408	HEDBLUM INDUSTRIES
MID005341714	HI-MILL MANUFACTURING CO.
MID980794416	IONIA CITY LANDFILL
MID980609440	J & L LANDFILL
MID980506463	K & L AVENUE LANDFILL
MID006016703	KAYDON CORP.
MID981089915	KENT CITY MOBILE HOME PARK
MID000260281	KENTWOOD LANDFILL
MID043681840	KYSOR INDUSTRIAL CORP.
MID067340711	LIQUID DISPOSAL, INC.
MID985574227	LOWER ECORSE CREEK DUMP
MID980794465	MASON COUNTY LANDFILL
MID005339676	MCGRAW EDISON CORP.
MID980992952	METAL WORKING SHOP
MID980506562	METAMORA LANDFILL
MID000775957	MICHIGAN DISPOSAL (CORK STREET LANDFILL)
MID980702989	MOTOR WHEEL, INC.
MID072569510	MUSKEGON CHEMICAL CO.
MID005480900	NORTH BRONSON INDUSTRIAL AREA
MID020883609	NORTHERNAIRE PLATING

EPA ID Number	Site Name
MID084566900	NOVACO INDUSTRIES
MID990858003	ORGANIC CHEMICALS, INC.
MID980794440	OSSINEKE GROUND WATER CONTAMINATION
MID060174240	OTT/STORY/CORDOVA CHEMICAL CO.
MID980794747	PACKAGING CORP. OF AMERICA
MID980476907	PARSONS CHEMICAL WORKS, INC.
MID006031348	PEERLESS PLATING CO.
MID006013049	PETOSKEY MUNICIPAL WELL FIELD
MID095402210	RASMUSSEN'S DUMP
MID006028062	ROCKWELL INTERNATIONAL CORP. (ALLEGAN)
MID980499842	ROSE TOWNSHIP DUMP
MID005340088	ROTO-FINISH CO., INC.
MID000724930	SCA INDEPENDENT LANDFILL
MID980794473	SHIAWASSEE RIVER
MID069826170	SOUTH MACOMB DISPOSAL (LANDFILLS 9 & 9A)
MID980608780	SOUTHWEST OTTAWA COUNTY LANDFILL
MID000268136	SPARTA LANDFILL
MID079300125	SPARTAN CHEMICAL CO.
MID980794481	SPIEGELBERG LANDFILL
MID980499966	SPRINGFIELD TOWNSHIP DUMP
MID980609341	STATE DISPOSAL LANDFILL, INC.
MID980703011	STURGIS MUNICIPAL WELLS
MID980794655	TAR LAKE
MID044567162	THERMO-CHEM, INC.
MID980901946	TORCH LAKE
MID980794556	U.S. AVIEX
MID000722439	VELSICOL CHEMICAL CORP. (MICHIGAN)
MID980793806	VERONA WELL FIELD
MID980701247	WASH KING LAUNDRY
MID060179587	WASTE MANAGEMENT OF MICHIGAN (HOLLAND)
MID980701254	WHITEHALL MUNICIPAL WELLS
MI5570024278	WURTSMITH AIR FORCE BASE

ADAM'S PLATING MICHIGAN

EPA ID# MID006522791



EPA REGION 5

Ingham County
Lansing

Site Description

The 1-acre Adam's Plating site has been used for electroplating operations since 1964. Before electroplating operations began, the site was used by a dry cleaning company. In the mid-1950s, an underground storage tank containing solvents was discovered to be leaking and was removed. Wastewaters from the electroplating operations were discharged to the storm sewers until 1971, when the site was connected to the municipal sanitary sewers. Wastewaters were discharged directly into the municipal sewers until the mid-1970s. Subsequently, wastewaters were collected, stored, and treated prior to discharge into the sewers. Wastewaters, first, were stored on site in a partially buried tank, which was removed when it was discovered to be leaking. Currently, wastewater storage is in an underground storage tank in the southwestern corner of the site. Evidence that a contaminant release may have occurred first was observed in 1980. While removing a tree on a neighboring property, an old tile drain was broken, and residents observed "green water" entering the hole. Later, this "green water" flooded the basement of a nearby home and was pumped into the yard. This pumping system continued until the flooding problem was reported to the Ingham County Health Department in 1981. The Michigan Department of Natural Resources (MDNR) found that wastewater with a high chromium content was saturating soils. In 1981, the MDNR found trichloroethylene (TCE), a dry cleaning solvent, in the soil as well. The population density is approximately 1,800 people per square mile around the site and includes residential, industrial and commercial properties.

Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

Threats and Contaminants



The soil is contaminated with arsenic and chromium. Inhalation of contaminated subsurface soil particles, or accidental ingestion of contaminated soil, poses a potential health threat.

Cleanup Approach

Response Action Status



Entire Site: The EPA conducted an investigation to determine the nature and extent of contamination. The investigation included the testing of groundwater and soils.

The final cleanup remedy was selected in 1993 and includes: excavation and off-site disposal of approximately 4,700 cubic yards of contamination soils located around the buildings at the site. The engineering design of the remedy was completed and cleanup actions were started in 1994. The cleanup actions are anticipated to be completed in 1995.

Environmental Progress



Construction has been completed at the Adam's Plating site and cleanup activities are underway.

Site Repository



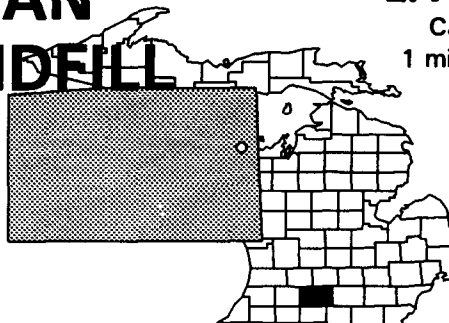
Lansing Public Library, 401 South Capital Street, Lansing, MI 48933
Lansing Township Hall, 3209 West Michigan, Lansing, MI 48917

ALBION-SHERIDAN TOWNSHIP LANDFILL MICHIGAN

EPA ID# MID980504450

EPA REGION 5

Calhoun County
1 mile east of Albion



Site Description

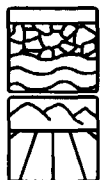
From 1966 to 1981, the 21-acre Albion-Sheridan Township Landfill site accepted municipal refuse and industrial wastes from the City of Albion and nearby Sheridan Township. According to the owner, the landfill accepted 200 to 300 cubic yards of sludges from the Union Steel Products plant prior to 1981. Tests conducted by the Michigan Department of Natural Resources (MDNR) in 1984 and 1986 indicated that the sludges contain various heavy metal contaminants. In 1986, the EPA found approximately 40 drums on the surface, some filled with what appeared to be oil and grease wastes. The landfill is covered with sand and gravel, and there are signs of burning. Some vegetation has grown on the cover. Approximately 13,500 people obtain drinking water from public and private wells within 3 miles of the site. The north branch of the Kalamazoo River is 300 feet from the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88
Final Date: 10/04/89

Threats and Contaminants



The groundwater and soil are contaminated with arsenic, iron, barium & manganese. Various organic chemicals and heavy metals are contained in the landfill. Possible health threats include direct contact with or accidental ingestion of contaminated soils, or groundwater.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



access.

Initial Actions: In 1990, under EPA monitoring, two potentially responsible parties began sampling, overpacking, and disposing of leaking drums on the landfill surface. About 30 drums have been removed. Additionally, the site was fenced to restrict



Entire Site: The EPA is conducting an investigation to determine the nature and extent of contamination at the site and to recommend alternative methods for site cleanup. The investigation began in 1991 and is scheduled to be completed in early 1995, at which time a final cleanup remedy will be selected.

Site Facts: A Unilateral Administrative Order was issued to four potentially responsible parties in 1990 to perform site cleanup work.

Environmental Progress



The sampling, overpacking, and disposing of leaking drums and fencing of the site have reduced the potential of exposure to contaminants at the Albion-Sheridan Township Landfill site while studies are being completed and cleanup activities are being planned.

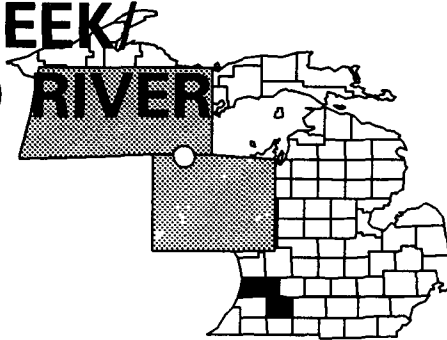
Site Repository



Albion Public Library, 501 S. Superior St., Albion, Michigan 49224

ALLIED PAPER, INC./ PORTAGE CREEK/ KALAMAZOO RIVER MICHIGAN

EPA ID# MID006007306



EPA REGION 5
Kalamazoo and Allegan Counties
Kalamazoo

Other Names:
Allied Paper
Portage Creek

Site Description

The Allied Paper, Inc./Portage Creek/Kalamazoo River site entails extensive polychlorinated biphenyl (PCB) contamination of the soil, sediments, water column, and biota at the Allied Paper, Inc. property, a 3-mile stretch of Portage Creek where the creek meets the Kalamazoo River, and along a 35-mile stretch of the Kalamazoo River. This contamination is a result of area paper mills recycling carbonless copy paper containing PCBs between 1957 and 1971. By 1986, the Michigan Department of Natural Resources had identified several PCB contaminated areas along an 80-mile stretch of the Kalamazoo River between Kalamazoo and Lake Michigan. The data clearly indicated that PCBs have migrated off site (further downstream) and that upstream sources owned by the potentially responsible parties are causing the ongoing contamination. Based upon this data, the Michigan Department of Natural Resources has expanded the site study to include approximately 80 miles of river from Morrow Lake Dam to the area previously owned or operated by the potentially responsible parties.

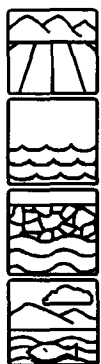
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 05/05/89

Final Date: 08/30/90

Threats and Contaminants



Soil, sediments, surface water, groundwater, and fish are contaminated with PCBs. Direct contact with, inhalation of, or ingestion of soils, sediments, surface water, groundwater, or fish could pose a health threat. The sediments alone contain over 300,000 pounds of PCBs. The five uncontained paper water disposal areas situated on the river banks contain millions of tons of PCB contaminated paper residuals. The PCBs continue to migrate into the environment from these areas due to erosion and surface runoff. This migration of PCBs is contributing to the ongoing contamination to the water column and biota both in and adjacent to the Kalamazoo River/Portage Creek and Lake Michigan. Annually since 1977, the Michigan Department of Public Health has issued an advisory warning people against eating fish from the Kalamazoo River because of PCB contamination.

Cleanup Approach

This site is being addressed in five stages: an initial action and five long-term remedial phases focusing on the cleanup of Allied Paper/Bryant Mill Pond, Willow Boulevard/A-site, King Highway Landfill, 12th Street Landfill, and the river.

Response Action Status



Initial Action: Under the direction of the EPA, highly contaminated areas of the Allied Paper, Inc. property were fenced in November 1990 and March 1991. These areas and several others along the river were posted with "No Entry - Hazardous Substances" signs.



Allied Paper/Bryant Mill Pond: The potentially responsible parties, under State supervision, are currently conducting an investigation to determine the nature and extent of contamination. MDNR oversaw the completion of a voluntary cleanup in the winter of 1994 at the former Allied Paper, Inc. mill vaults. A second voluntary cleanup of more vaults is underway.



Willow Boulevard/A-Site: The potentially responsible parties, under State supervision, are currently conducting an investigation to determine the nature and extent of contamination at this subsite.



King Highway Landfill: An investigation to determine the nature and extent of contamination at the King Highway Landfill was completed in early 1995. A remedy is expected to be selected by early 1996.



12th Street Landfill: The potentially responsible parties, under State supervision, are currently conducting an investigation to determine the nature and extent of contamination at this subsite.



River: The potentially responsible parties, under State supervision, are currently conducting an investigation to determine the nature and extent of contamination at this subsite.

Site Facts: The State has identified three potentially responsible parties who have signed an Administrative Order on Consent to fund and conduct the site study. An extensive community involvement program exists at the site. The State has established a Government Advisory Committee and a Citizens Advisory Committee which meet bimonthly. Participants on the Citizens Advisory Committee include a local citizens group that has received a technical assistance grant and 40 other interested citizens. Progress reports and fact sheet are being sent to more than 600 citizens in an effort to keep them apprised of the progress at the site.

Environmental Progress



Potential for exposure to hazardous materials has reduced by fencing and the posting of signs at known contaminated areas along the river while further cleanup actions are being planned.

Site Repository

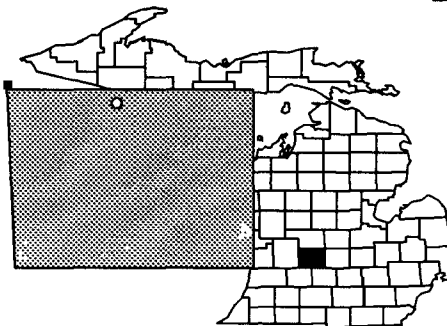


Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, MI 49007
Comstock Township Library, 6130 King Highway, Comstock, MI
Waldo Library, Western Michigan University, Kalamazoo, MI
Otsego District Library, 219 South Farmer, Otsego, MI
Allegan Public Library, 180 South Sherwood, Allegan, MI

**AMERICAN
ANODCO, INC.
MICHIGAN**
EPA ID# MID006029102

EPA REGION 5

Ionia County
Ionia



Site Description

Since 1962, aluminum parts for the automotive industry have been cleaned on the 8-acre American Anodco, Inc. site. In 1962, under an agreement with the State, process wastewaters and spent chemicals from the site were discharged directly to the on-site seepage lagoon. The waste streams contained heavy metals that leached from metal parts during the anodizing process. In order to promote wastewater infiltration, lagoon sludge and sediments were dredged in 1972 and 1978 and placed near the lagoon. In 1978, American Anodco received approval from the State to continue discharging wastewater into the lagoon. The company also disposed of process and cooling water in an unlined seepage lagoon. According to analyses conducted by the EPA, the water placed in the lagoon contains nitric acid and chromium. In 1986, American Anodco began to phase out the use of the seepage lagoon, and in 1987, began discharging process wastewaters to a new public sewer system. Approximately 1,100 people reside within a mile of the area. The glacial drift aquifer underlying American Anodco supplies public and private wells within a 3-mile radius; these wells serve over 10,000 people. Grand River, which is within 3 miles of the site, is used for fishing and recreation.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/10/86

Final Date: 03/31/89

Threats and Contaminants



Water samples collected from the lagoon by the Michigan Department of Natural Resources (MDNR) in 1978 identified several contaminants including phosphorus and heavy metals such as aluminum, chromium, copper, and lead. Because contaminants have been removed from the lagoons, direct contact with hazardous materials is unlikely. Prairie Creek, which borders the site area on the east, joins the Grand River 1 mile south of the site. Because the groundwater is contaminated with arsenic, movement of contaminants to the creek is possible. The contamination plume does not reach any private wells.

Cleanup Approach

Response Action Status



Immediate Actions: In 1987, American Anodco dewatered the lagoon, removed the sludge, and disposed of it in an off-site landfill. The lagoon then was filled with clean soil.



Entire Site: In 1987, the parties potentially responsible for site contamination began an investigation to determine the extent and nature of groundwater and soil contamination beneath the former lagoon and to identify alternatives for site cleanup. Four additional monitoring wells were installed by the potentially responsible parties in 1992 to further characterize the groundwater conditions at the site. The investigation was completed in 1993. The EPA issued a "no action" remedy because of low risk posed by the arsenic levels in the groundwater. The remedy calls for 24 months of groundwater monitoring to ensure arsenic levels do not rise.

Site Facts: An Administrative Order on Consent was signed by the potentially responsible party in 1987 to conduct an investigation of site contamination.

Environmental Progress



The dewatering and removal of sludge from the lagoon eliminated the potential for exposure to contaminated materials at the American Anodco, Inc. site. Additional monitoring will continue through 1995 to ensure that arsenic levels in the groundwater do not rise.

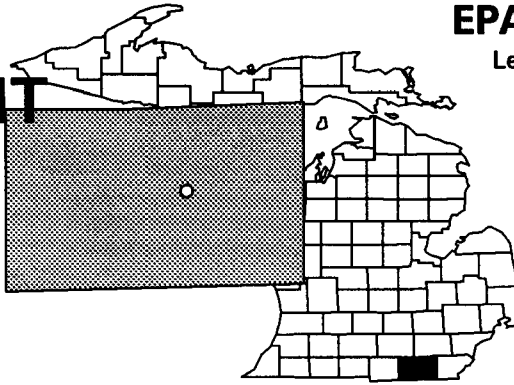
Site Repository



Ionia Public Library, 126 East Main Street, Ionia, MI 48846

ANDERSON DEVELOPMENT COMPANY MICHIGAN

EPA ID# MID002931228



EPA REGION 5

Lenawee County
Adrian

Site Description

The Anderson Development Company (ADC) manufactured specialty organic chemicals on a 12½-acre site in Adrian and sells the products to other manufacturers. ADC produced the chemical MBOCA from 1970 to 1979 under the trade name of Curene 442. MBOCA is used as a curing agent for polyurethanes and epoxy resins and is considered to be a highly toxic compound that can be absorbed through the skin. MBOCA was discharged to the environment through surface water and airborne routes. MBOCA contamination was found in high concentrations in sludges in the pretreatment lagoon and lower concentrations in sediments and soil within a 2-mile radius of the ADC facility in 1979. In 1980 and 1981, the Michigan Department of Natural Resources (MDNR), ADC, and the Michigan State Toxic Substance Control Commission conducted an extensive cleanup and monitoring program that involved sampling of nearby surface soil and home carpet vacuum dust testing. Approximately 25,000 people live within 3 miles of the site.

Site Responsibility: This site was addressed through Federal, State, local, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



The surface soil, lagoon sludge, and clay underlying the lagoon were contaminated with MBOCA, a known carcinogen that can be absorbed through the skin. Inhaling contaminated dust also was considered to be a potential health risk. MBOCA was detected in the urine samples of ADC workers and preschool children living near ADC.

Cleanup Approach

Response Action Status



Initial Actions: In 1981, Lenawee County initiated a free cleanup effort to aid local homeowners whose residences were contaminated with MBOCA. This included cleaning up the interior and exterior of homes in the Sunnyside area. Homes with private wells in the vicinity of ADC were connected to a clean water supply system funded by the Farmers Home Administration.



Entire Site: The parties potentially responsible for site contamination, under EPA oversight, performed an investigation that assessed the type of contaminants present, identified the degree of contamination, and characterized potential risks to the community. This investigation was completed in the spring of 1990, and the cleanup remedy was selected in the fall of 1990. The 1990 remedy recommended the use of in-situ vitrification technologies to decontaminate soils at the site. An amendment to the remedy in 1991, however, modified the remedy to test the effectiveness of low temperature thermal desorption for its ability to cleanup the soil. It was determined that this technology was effective, and treatment began in January 1992. Cleanup was completed in the fall of 1993.

Site Facts: On April 30, 1986, Anderson Development Company entered into an Administrative Order on Consent with the EPA for the company to study the nature and extent of site contamination.

Environmental Progress



The cleanup of residences, the provision of an alternate water supply, and final cleanup of contaminated site soils have eliminated the potential of exposure to MBOCA-contaminated materials at the Anderson Development Company site. All cleanup goals have been met.

Site Repository



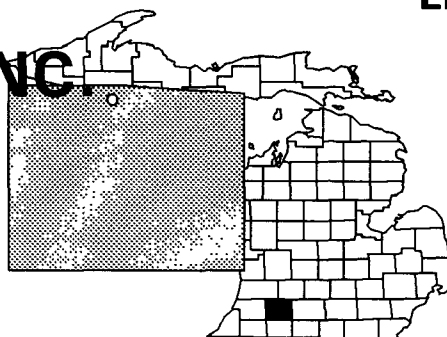
Adrian City Library, 143 East Maumee Street, Adrian, MI 49221

AUTO ION CHEMICALS, INC. MICHIGAN

EPA ID# MID980794382

EPA REGION 5

Kalamazoo County
Kalamazoo



Site Description

Between 1963 and 1973, chromium plating wastes were treated at the 1 1/2-acre Auto Ion Chemicals, Inc. site. Liquid waste was stored in an open air lagoon and in five process storage tanks in an on-site building's basement. Approximately 122,000 gallons of liquid plating wastes and sludges were stored in other various locations on site. During the plant's operation, the Michigan Department of Natural Resources (MDNR) documented numerous pollution discharges to the soil, groundwater, and surface water of the adjacent Kalamazoo River. The MDNR stopped operations at Auto Ion in 1973. Two city drinking water wells are located within 2 miles of the site. The wells are part of the Kalamazoo municipal system that provides water to over 100,000 residents. However, municipal wells are not thought to be threatened by contamination at the Auto Ion Site. A residential area is located approximately 500 feet north of the site. The population within 1/2 mile of the site is approximately 2,300.

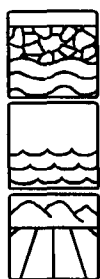
Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Volatile organic compounds (VOCs) including vinyl chloride and the heavy metals arsenic, cadmium, lead and nickel were detected in groundwater. Chromium, nickel, chloride, and cyanide were found in surface water and sediment samples taken from the Kalamazoo River between 1964 and 1973. Soil was contaminated with chromium, arsenic, cadmium, lead, nickel, cyanide and organic contamination known as polynuclear aromatic hydrocarbons (PAHs). Potential health risks existed if contaminated groundwater was accidentally ingested or dust from contaminated soils was inhaled.

Cleanup Approach

Response Action Status



Immediate Actions: Under EPA oversight, the parties potentially responsible for the contamination removed contaminants from the surface of the site in 1985. An abandoned building was torn down in 1986, and the debris was removed.

Additionally, the entire site was fenced to prevent access to the contaminated soil and groundwater.



Soil: In 1993, the potentially responsible parties excavated approximately 24,000 tons of contaminated soil from the unsaturated zone at the site. All soil excavation work was overseen by the EPA. This contaminated soil was taken to licensed landfills in Ohio and Michigan. The site was then backfilled with clean soil. The soil excavation eliminated the risk of people coming into contact with the contaminated soil and it removed the source of further contamination in the underlying groundwater.



Groundwater: In 1988, the potentially responsible parties began an investigation to determine the extent and type of groundwater contamination. Investigations determined that the groundwater posed no risk to humans. Therefore, a remedy was selected in the fall of 1994 which calls for no further cleanup action, except groundwater monitoring to ensure that contaminants remain below EPA-established levels.

Site Facts: In 1990, the EPA and 42 potentially responsible parties signed a Consent Decree to perform the technical design and cleanup of soil. This soil cleanup was completed in 1993.

Environmental Progress



All construction at the site is complete. Removing contaminated soil and debris and fencing the site have reduced the potential for exposure to contaminated materials at the Auto Ion Chemicals, Inc. site.

Site Repository



Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, MI 49007

AVENUE "E" GROUNDWATER CONTAMINATION MICHIGAN

EPA ID# MID980791461



EPA REGION 5

Grand Traverse County
Traverse City

Other Names:
East Bay Township
Residential Wells

Site Description

The 435-acre Avenue "E" Groundwater Contamination site consists of two areas: the 115-acre U.S. Coast Guard Air Station and a 320-acre area bordered on the north by the East Arm of Grand Traverse Bay. In 1980, residents along Avenue "E" in East Bay Township complained of odors and foaming of water drawn from domestic wells. Investigations by the State showed that wells were contaminated with organic substances. Additional investigations indicated that the origin of the contamination was in the vicinity of the U.S. Coast Guard Air Station, on land formerly owned and operated by the U.S. Navy. An old Navy waste dump, located to the east of the Coast Guard property, was suspected to be a contributor to the problem. During the past 40 years, spills of fuels and solvents used during aircraft maintenance at the facility may have leached through the soil and contaminated the underlying groundwater. In 1969, a spill of aviation fuel from an underground storage tank occurred. Surface disposal of liquid organic chemicals reportedly occurred in the northeastern corner of the station. An area north of the current Hangar and Administration Building may have served in part as a waste oil pit. Drums of solvents and other chemicals were stored in an area near the northwestern corner of the building. Aircraft maintenance also was conducted in this general area. This site is adjacent to Traverse City, which has a population of approximately 16,000. Grand Traverse Bay is used as a water source for the Traverse City public water system. The Bay also is used for recreational activities.

Site Responsibility: This site is being addressed through State and Federal actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs) and phthalates. Soils are contaminated with the major components of jet fuel, mostly VOCs and phthalates. The greatest potential health threat to people is through drinking or coming into direct contact with contaminated groundwater. Although most residences have been connected to the public water system, a few homes still may be using private wells. Recreational use of East Bay poses a potential health risk. Soil excavations in highly contaminated areas are a potential health concern for on-site workers, who could be exposed to high concentrations of soil and airborne contaminants.

Cleanup Approach

This site is being addressed in two stages: an immediate action and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Action: In 1982, the U.S. Coast Guard extended public water lines from Traverse City to residences affected by the contaminated groundwater.



Entire Site: In 1983, the U.S. Coast Guard completed its investigation into the nature and extent of contamination at the site. In 1985, the Coast Guard installed two well fields to pump groundwater and to prevent further contamination from leaving the property. Following treatment to remove contaminants, the groundwater is discharged to the Traverse City sanitary sewer system. This pump and treat system currently remains in operation. Also in 1985, the Coast Guard began bioremediation of soils using microorganisms to break down soil contaminants. The soil bioremediation system first was installed in 1987; a third round of treatment began in 1990. In addition, pilot programs such as aerobic-bioremediation and anaerobic-bioremediation of two plumes and soil vapor extraction have been completed. The results from these pilot programs are in the process of being evaluated to determine the most effective remedy for final site cleanup.

Site Facts: In 1985, the State and the U.S. Coast Guard signed a Consent Order in which the U.S. Coast Guard agreed to study contamination at the site and to recommend cleanup alternatives. A settlement agreement was reached between the State of Michigan and the U.S. Coast Guard in 1987.

Environmental Progress



The extension of public water lines has reduced the potential of exposure to contaminated drinking water and will continue to protect residents near the Avenue "E" Groundwater Contamination site. The Coast Guard has taken steps to limit the further spread of contamination and has initiated soil cleanup actions. These actions will continue until site contamination has been reduced to safe levels.

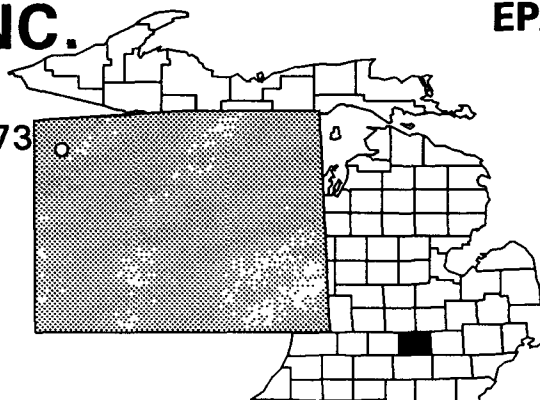
Site Repository



Not established.

BARRELS, INC. MICHIGAN

EPA ID# MID017188673



EPA REGION 5

Ingham County
Lansing

Site Description

From 1964 to 1981, Barrels, Inc. recycled drums on this 1 3/4-acre site. Waste residues allegedly were dumped from drums directly onto the ground as an initial step in recycling drums. The State detected lead and zinc in the shallow groundwater in 1983. Approximately 9,000 people live within a mile of the site. Three schools are located within 1/2 mile of the site. The shallow and deeper aquifers provide drinking water to the 133,000 residents of the Cities of Lansing and Holt. The Grand River is 1,800 feet from the site and is used for fishing.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 01/22/87

Final Date: 10/04/89

Threats and Contaminants



Air is polluted with volatile organic compounds (VOCs). Groundwater is contaminated with VOCs and heavy metals including lead and zinc. Polychlorinated biphenyls (PCBs) and heavy metals including chromium and lead are contaminating the soil. The greatest health threats to people stem from direct contact with or accidental ingestion of contaminated soils or groundwater. The areas along the Grand River serve as a habitat for the endangered Indiana Bat.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: All drums, 1,000 cubic yards of contaminated soil, and nine underground tanks were removed and sent by the State to a federally approved disposal facility in 1986. The contents of one underground tank and two tanks in the building have been pumped out by the State.



Entire Site: The EPA is planning to conduct an investigation into the nature and extent of contamination of the site and to identify alternative cleanup technologies.

Environmental Progress



The excavation of drums and contaminated soil and the removal and draining of tanks have reduced the potential for exposure to contaminants at the Barrel, Inc. site while investigations are being planned.

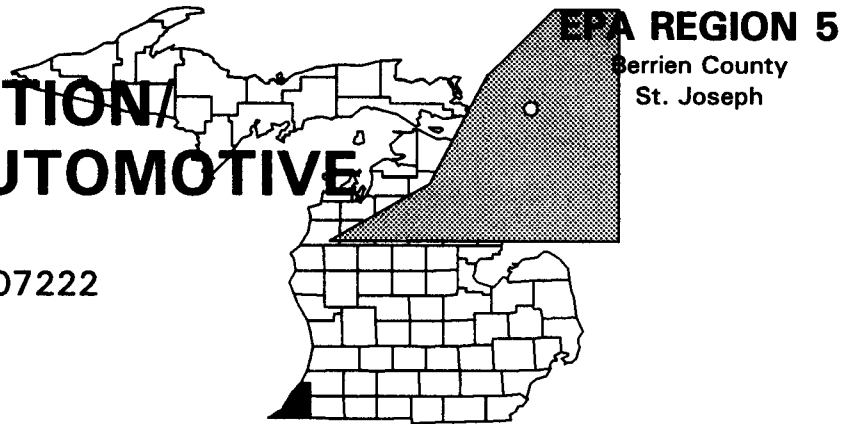
Site Repository



Not established.

BENDIX CORPORATION/ ALLIED AUTOMOTIVE MICHIGAN

EPA ID# MID005107222



Site Description

Bendix Corporation/Allied Automotive manufactures automotive brake systems at this 36-acre site. From 1966 to 1975, a seepage lagoon on site was used for the disposal of machine shop process wastewater. Chlorinated organic solvents, wastewater from electroplating operations, plating bath solutions, chromium, and lead may have been placed in the seepage lagoon. The lagoon was closed and capped in 1978. A private well located 750 feet from the site was closed in 1982 because of contamination. Approximately 4,300 people obtain drinking water from private wells within 3 miles of the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

Threats and Contaminants



Groundwater is contaminated with various volatile organic compounds (VOCs). People may be at risk if they drink or have direct contact with contaminated water; however, no one is currently drinking contaminated groundwater.

Cleanup Approach

This site is being addressed in a long-term remedial phase focusing on groundwater cleanup.

Response Action Status



Groundwater: The potentially responsible party, Bendix Corporation/Allied Automotive, is conducting an investigation into the nature and extent of groundwater contamination at the site. The investigation is being conducted in two phases. Phase 1 consists of groundwater, surface water, and sediment sampling and analysis. Phase 2 consists of a soil gas survey and soil sampling and analysis to locate the source of the contamination. The EPA plans to continue to evaluate various technologies throughout 1995 to address the contamination identified during the investigations. A decision on cleanup alternatives is scheduled for 1996.

Site Facts: In 1989, the EPA entered into an Administrative Order with Bendix Corporation/Allied Automotive, requiring the company to conduct an investigation of site contamination.

Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Bendix Corporation/Allied Automotive site while studies are taking place and cleanup activities are being planned.

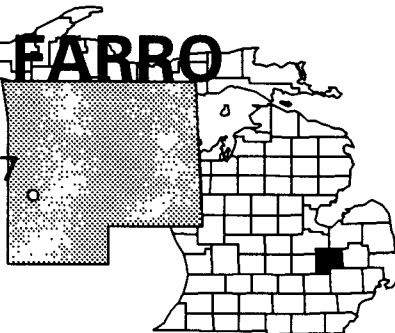
Site Repository



Maud Preston Polenski Memorial Library, 500 Market Street, St. Joseph, MI 49085

BERLIN AND FARRO MICHIGAN

EPA ID# MID000605717



EPA REGION 5

Genesee County
3 1/2 miles south of Swartz Creek

Other Names:
Berlin and Farro Liquid Incinerator

Site Description

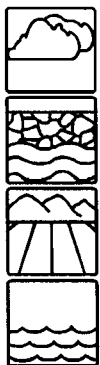
The 40-acre Berlin and Farro site was licensed to operate as an industrial liquid waste incinerator from 1971 to 1975. During operations, liquid wastes were incinerated, stored in open lagoons and underground tanks, and poured into an agricultural drain. Crushed and empty drums were disposed of on site in a landfill. In 1975, the State ordered the incinerator to shut down due to a lack of emission controls and an open lagoon that posed a health threat. Subsequently, the State ordered the parties potentially responsible for site contamination to clean up the site. In 1978, the owners submitted a work plan for site cleanup to the State. Before filing for bankruptcy and abandoning the site in 1980, the owners initiated some of the activities in the work plan. However, approximately 10,000 drums, five buried tanks, and four lagoons containing contaminated sludges were left on site. The Berlin and Farro site is located in a rural area where residents depend on private wells for their drinking water supply.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82
Final Date: 09/08/83

Threats and Contaminants



Air is contaminated with pesticides. Groundwater and soil contain volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). Surface water located in Slocum Drain and Swartz Creek is contaminated with pesticides. PCBs and paint solvents are present in sludge. Residents could be exposed to site-related contaminants through direct contact with contaminated surface water in Slocum Drain and Swartz Creek. In addition, on-site workers could be exposed to contaminants if they drink or have direct contact with contaminated groundwater.

Cleanup Approach

This site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on source control and cleanup of the entire site.

Response Action Status



Immediate Actions: A series of immediate actions began in 1981, when the State removed and disposed of 15,300 cubic yards of sludges. The EPA constructed a fence around the site, excavated and disposed of contaminated soils and drums, and strengthened an earthen underflow dam to prevent contaminated runoff from migrating off site. In 1982, the contents of four buried liquid storage tanks containing pesticides were pumped out by the State and were re-buried, and sampling and analysis were undertaken by the Michigan Department of Natural Resources (MDNR). The EPA took the following actions in 1982: installed a security fence and upgraded a siphon dam; removed 3,600 cubic yards of contaminated soil and landfilled 4,000 barrels of flammable sludge; removed 1,919,195 pounds of PCB-contaminated wastes and 11 tons of soil and sludge waste to an EPA-approved hazardous waste storage facility; dug trenches throughout the site to locate buried drums and contaminated soil layers; located a total of 33 drums, which were sampled and combined for disposal; and excavated an additional 120 cubic yards of contaminated soil and shipped it to a storage facility. In 1983, the EPA opened drums, removed their contents, mixed them with soil, and transported the mixture off site for disposal.



Source Control: The cleanup actions selected for source control included: excavating the existing drum landfill, paint sludge trench, agricultural drains, and miscellaneous contaminated areas; separating PCB solid wastes from non-PCB solid wastes and transporting these materials to an off-site disposal facility; transporting PCB liquid wastes to an off-site incinerator; pumping non-PCB liquid wastes from the drum landfill and transporting the wastes to an off-site incinerator; and backfilling the areas with uncontaminated soils and, if necessary, installing a temporary layer of soil over the excavated areas. In 1984, the potentially responsible parties installed the equipment necessary to complete these cleanup activities. The parties removed 75,000 tons of contaminated soil and sludges and 10,745 tons of other waste. The landfill was excavated, and drums and contaminated soils were removed. Once excavated, the deteriorated drums were crushed and mixed with contaminated soils. Liquids from the drums then were drained into a sump, pumped to a tanker truck, and transported off site. The North-South agricultural drain and the paint sludge trench also were excavated. The excavated areas were backfilled with clean soil, and the equipment was demobilized.



Entire Site: The potentially responsible parties conducted an investigation into the nature and extent of remaining contamination at the site. Based on study findings, the final cleanup remedy was selected in 1991 and includes on-site landfilling of contaminated material with some potential solidification prior to landfilling and treatment of contaminated groundwater through air stripping. Design activities by the parties potentially responsible for site contamination are underway.

Site Facts: A Consent Decree was signed among the parties potentially responsible for site contamination, under which they agreed to conduct cleanup activities at the site. A Consent Decree for recovery of costs was lodged in February 1994. The agreement included settlement with *de minimis* parties—who are small contributors of waste, either in volume or toxicity.

Environmental Progress



The numerous cleanup actions, including the removal of contaminated soil, wastes, and drums, have reduced the potential for exposure to contaminated materials at the Berlin and Farro site while remaining cleanup activities are being designed.

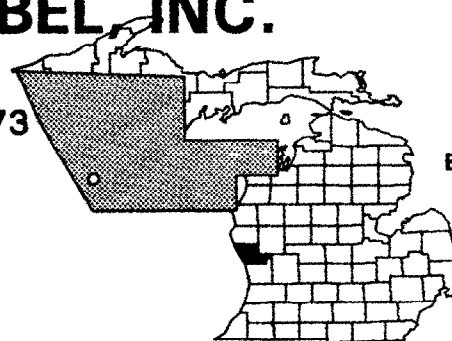
Site Repository



Perkins Library, 8095 Civic Drive, Swartz Creek, MI 48473

BOFORS NOBEL INC. MICHIGAN

EPA ID# MID006030373



EPA REGION 5

Muskegon County
Muskegon

Other Names:
Bofors Lakeway Chemical, Inc.

Site Description

Lakeway Chemicals, later called Bofors-Nobel, began producing industrial chemicals at the site in 1960. Throughout the 1960s and early 1970s, on-site lagoons were used for disposal of sludge, wastewater, and various waste liquids. This practice resulted in contamination of the groundwater underneath the site and, consequently, Big Black Creek. In 1975, waste materials overflowed one of the lagoons, resulting in a discharge to Big Black Creek. In 1976, the Michigan Department of Natural Resources (MDNR) placed various restrictions on wastewater disposal from the site, and required Bofors-Nobel to install purge wells to intercept contaminated groundwater before it reached the Creek. In 1987, Bofors-Nobel filed for bankruptcy and sold a portion of the site to the current owner and operator, Lomac, Inc. Lomac continues to operate a water treatment system according to an agreement made with MDNR. Approximately 6,400 people obtain drinking water from private wells within 3 miles of the site, and about 1,800 people live within a 1 ¼-mile radius of this site.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88
Final Date: 03/31/89

Threats and Contaminants



The most significant pathways for release of contaminants at the Bofors site are through the air, surface water, and groundwater. Contaminants include: methylene chloride, benzene, 3,3'-dichlorobenzidine (DCB), aniline, azobenzene and benzidine. The principal threat posed to human health and the environment is the risk of contaminant migration from the sludges and soils into the lacustrine aquifer, a potential source of drinking water, directly under the site. Contaminated groundwater, if it discharges into Big Black Creek, poses a risk from ingestion of contaminated creek water. There is also a threat from inhalation of volatilized contaminants from the sludges and soils.

Cleanup Approach

This site is being addressed in two long-term remedial phases focusing on cleanup of groundwater and soils and sludges in the lagoon area and soils located around and underneath the operating facility.

Response Action Status



Lagoons and Groundwater: In 1990, a remedy to address the entire site was selected; however, the remedy was amended to address only the lagoons and groundwater. The amended remedy included construction of a groundwater treatment facility and an on-site landfill. Design and construction of the groundwater treatment facility is complete, and the facility is currently operating. The design of the landfill is underway, and construction is expected to begin in late 1995.



Operating Facility Soils: Studies concerning the nature and extent of contamination have been completed, and EPA is expected to select a remedy to clean up the soils by the end of 1995.

Environmental Progress



The continued treatment of groundwater is ensuring that pollutants are not spreading to wells or the nearby creek while a remedy to address contaminated soils is being selected.

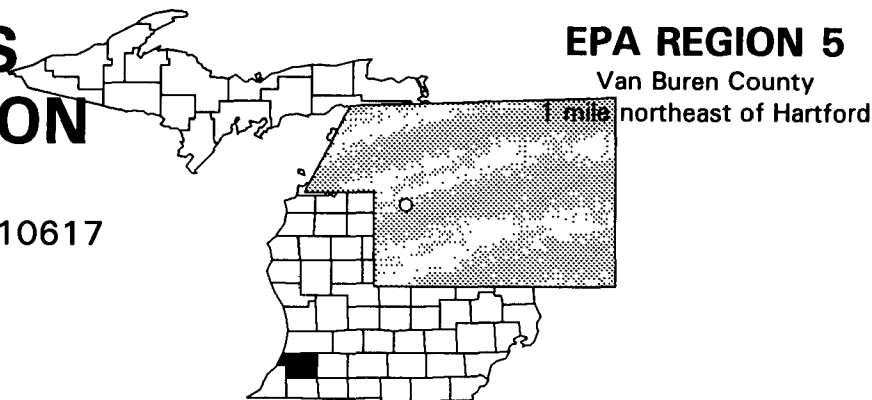
Site Repository



Muskegon County Library, Egelston Township Branch, 5384 Apple Avenue,
Muskegon, MI 49440

BURROWS SANITATION MICHIGAN

EPA ID# MID980410617



Site Description

From 1970 to 1977, the 15-acre Burrows Sanitation site was used for the disposal of plating sludges, waste coolants, and oils. Wastes were dumped into six unlined lagoons, onto an area of the site known as the "Cyanide Trail," and at two other spill areas on the site. The lagoons have overflowed during heavy rains. Groundwater samples have shown contamination; however, private water wells are not contaminated. In 1984, the Burrows Group, a group consisting of the owners and three firms that disposed of wastes at the site, excavated contaminated soils and sludges from the four disposal areas. Orchards are located within the site boundaries, and raspberries, mushrooms, and flowers grow wild on the property. Two wetland areas are located on the edges of the site. These areas are interconnected and are drained by the Doyle Drain, a canal that flows along the edge of the site. A berm is located to the north of the disposal area to prevent site runoff from directly entering Doyle Drain, which enters the Paw Paw River 3/4 mile from the site. The river is used for sport fishing. Approximately 150 people live within a 3/4-mile radius of the site and obtain water from private wells.

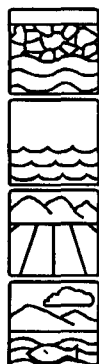
Site Responsibility: This site was addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater, surface water, and sediments were contaminated with heavy metals such as chromium, lead, and nickel. Soils also contained these contaminants before cleanup occurred. The lagoons contained several volatile organic compounds (VOCs). Health threats to people who trespassed on the site stemmed from direct contact with or accidental ingestion of contaminated groundwater, sediments, and surface water. Wetland areas also may have been threatened.

Cleanup Approach

Response Action Status



Immediate Actions: In 1984, the Burrows Group, under EPA supervision, excavated 8,600 cubic yards of waste sludges and contaminated soils from four waste disposal areas on site. The wastes were transported to a federally-approved facility.

In addition, a fence was constructed and warning signs were posted to prohibit access to the site.



Entire Site: In 1986, the EPA selected a remedy that included removing the remaining contaminated soils, lowering the surface water level in the northwest wetland, and extracting, treating, and discharging groundwater. By 1989, the removal of contaminated soils and sediments and drainage of the northwest wetland were completed. Cleanup of contaminated groundwater was constructed in 1991. Cleanup standards for groundwater were met at the site in December 1993 and groundwater remains clean.

Site Facts: In 1984, the EPA issued an Administrative Order, requiring the parties potentially responsible for site contamination to clean up the site. In 1989, Du-Wel Products, Inc., a potentially responsible party, entered into a Consent Decree with the EPA for the party to conduct a groundwater investigation and, if necessary, cleanup the contaminated groundwater.

Environmental Progress



All construction at the site is complete. The removal of sludges, soils, and sediments and the treatment of groundwater have eliminated threats to people and the environment at the Burrows Sanitation site.

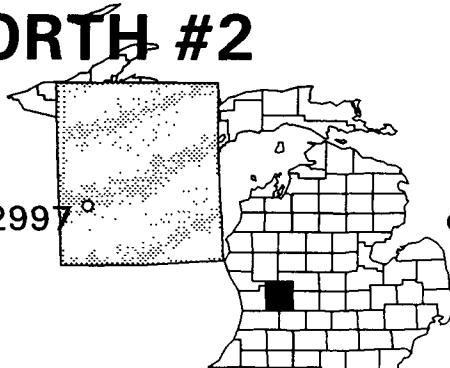
Site Repository



Hartford Public Library, 15 Franklin Street, Hartford, MI 49057

BUTTERWORTH #2 LANDFILL MICHIGAN

EPA ID# MID062222997



EPA REGION 5

Kent County
Grand Rapids

Other Names:

Grand Rapids City Landfill
Grand Rapids Gypsum Company (SIA)

Site Description

The Butterworth #2 Landfill site covers 185 acres in Grand Rapids. The City of Grand Rapids owned and operated the landfill as an open dump from the 1950s until 1967. The site was operated as a sanitary landfill from 1967 to 1973, when the State closed it for improper operations. The landfill received municipal, solid, and industrial wastes including plating waste, paint waste, and organic solvents. Much of the industrial waste was buried in 55-gallon drums or dumped in liquid form on the site's surface. In 1982, the EPA sampled the groundwater and found it to be contaminated with organic and inorganic chemicals. Approximately 1,300 people live within ½ mile of the landfill. The closest residence is about 200 yards away. The landfill is bordered by I-196, a bottling plant, a bread factory, and the Grand River. All the residences in the area are connected to the Grand Rapids municipal water system, which draws primarily from Lake Michigan, and, on occasion, from an intake on the Grand River upstream from the landfill. The river is used for recreational activities. Groundwater drains from the landfill into the river immediately downstream from a State-owned public access site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs) including benzene and vinyl chloride and the heavy metals iron, manganese, silver, and lead. Soils are contaminated with polychlorinated biphenyls (PCBs), pesticides, pyrene, chrysene, and heavy metals including chromium and cadmium. Because all the residences in the vicinity of the landfill are on a public water supply system, there is little chance that people would drink or come in direct contact with contaminated groundwater. People who trespass on the site and have direct contact with or accidentally ingest the contaminated soil may be at risk. Contaminants may be leaching into the Grand River. If the pollutants bioaccumulate in fish, the fish may pose a health hazard to those who eat them.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1989, the EPA found a "hot spot" of PCB contamination in the landfill. The potentially responsible parties excavated approximately 1,100 cubic yards of PCB-contaminated soil. A 6-foot-high chain-link fence was installed to prevent access to the site. During sampling, other highly contaminated areas were found. The potentially responsible parties excavated soil from these hot spots and transported the waste to a federally-approved facility.



Entire Site: An investigation was completed in 1992 by the potentially responsible parties. A remedy was selected that includes: upgrading the existing landfill cap to meet established standards; establishing Alternate Concentration Limits (ACLs) for groundwater; and monitoring groundwater, river water, and river sediments. The design of the remedy began in early 1993. EPA currently is reviewing the engineering design, which must be approved before any site cleanup activity occurs. Construction activity is expected to last a maximum of two years.

Site Facts: In 1986, the EPA, the City of Grand Rapids, General Motors Corporation, Wickes Manufacturing Company, Michigan Waste Systems, Inc., and Organic Chemicals, Inc. entered into a Consent Decree to conduct contamination studies at the site. In 1993, an Administrative Order on Consent (AOC) was executed between EPA and the potentially responsible parties for the purpose of designing the remedy.

Environmental Progress



The excavation of PCB-contaminated soil and the installation of a fence around the site have reduced site risks while the design of cleanup measures is underway.

Site Repository



Grand Rapids Public Library, West Side Branch, 713 Bridge Street, N.W.,
Grand Rapids, MI 49504

Grand Rapids Public Library Main Library, 60 Library Plaza, N.E., Grand Rapids, MI

CANNELTON INDUSTRIES, INC. MICHIGAN

EPA ID# MID980678627



EPA REGION 5

Chippewa County
Sault Sainte Marie

Other Names:
Northwestern Leather

Site Description

The Cannelton Industries, Inc. site covers 75 acres along the St. Mary's River in Sault Sainte Marie. From 1900 to 1958, the Northwestern Leather Company operated a tannery at the site and processed animal hides. Waste materials from the tannery operations were discharged through three drains to a low-lying shoreline area. Barrels and general wastes were burned and disposed of along the river. Between 1955 and 1958, the Fiborn Limestone Company, a subsidiary of Algoma Steel Corp., bought the property with the intention of constructing a manufacturing plant. In the fall of 1958, a fire damaged many of the tannery's buildings, nearly all of which have since been torn down by Algoma. The site has been unused since the tannery burned in 1958. It is presently vacant. In 1964, the property was transferred to Cannelton Industries, another Algoma subsidiary. In 1978, the Michigan Department of Natural Resources sampled St. Mary's River and found it, as well as soil and groundwater, to be contaminated with heavy metals. In 1988, the City fire department became concerned over recurrent fires in a 1- to 2-acre area at the site. The EPA assisted with efforts to reduce the fire potential. Approximately 1,200 people obtain drinking water from private wells within 3 miles of the site, with the nearest well about a mile away. Sault Sainte Marie, Ontario, draws drinking water from the St. Mary's River about 2 miles downstream of the old tannery disposal site. A portion of the site is located within the 100-year flood plain of the St. Mary's River.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 08/30/90

Threats and Contaminants



Groundwater, soils, and sediments in the St. Mary's River are contaminated with heavy metals including chromium, lead, manganese, arsenic, and iron. Sediments and soils also contain copper and mercury. Some chromium was detected in the St. Mary's River. Trespassers coming in direct contact with the soil or wastes on the site may be at risk. Those who use the St. Mary's River for recreational activities may be exposed to contaminants. If pollutants bioaccumulate in fish, they may pose a health hazard if eaten. Bald eagles, which feed and nest near the site, may come into direct contact with hazardous substances.

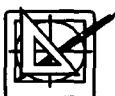
Cleanup Approach

The site is being addressed in two stages: initial actions and a long-term remedial phase directed at cleanup of the entire site.

Response Action Status



Initial Actions: In 1988, the EPA excavated five trenches to disperse heat build-up and to reduce gas accumulation to decrease the potential for additional fires. Algoma constructed a chain-link fence to limit access to a 1- to 2-acre portion of the site. In 1989, Algoma installed a sprinkler system to prevent dry conditions from contributing to fires. Under an order from the EPA, Algoma constructed a stone wall along part of the shoreline of the site to prevent wave and ice action from eroding the site. The EPA completed further stabilization and security actions during the fall of 1991, including fencing a greater area of the site, repairing existing fences, and further stabilizing the shoreline area.



Entire Site: In 1988, the EPA began to study the nature and extent of the contamination at the site. Field work was completed, and the investigative report was finalized in late 1991. Various cleanup options were evaluated and a final remedy was selected for the site cleanup in the fall of 1992. The remedy selected consists of the removal of contaminated debris, waste, soils and sediments, and disposal in a new on-site landfill. The design of the remedy was initiated by the potentially responsible party in 1993, and is expected to be completed in 1995. Cleanup actions are expected to begin in 1995.

Environmental Progress



By constructing a wall to prevent erosion of a portion of the shoreline, reducing the potential for additional fires, and constructing a security fence to restrict access to part of the site, the EPA has reduced the possibility of people coming in direct contact with hazardous materials on the Cannelton Industries, Inc. site while final plans for site cleanup are being designed.

Site Repository

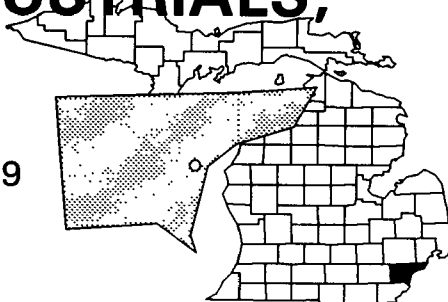


Gayliss Public Library, 541 Library Drive, Sault Sainte Marie, MI 49783

CARTER INDUSTRIALS, INC.

MICHIGAN

EPA ID# MID980274179



EPA REGION 5

Wayne County
Detroit

Other Names:
Carter Salvage Corporation

Site Description

The Carter Industrials, Inc. site is a former industrial scrap metal yard covering approximately 3 1/2 acres in Detroit. From 1971 to 1986, the metal salvaging operation handled a wide variety of materials that included electrical transformers and capacitors containing polychlorinated biphenyl (PCB)-contaminated oil. Oil was drained from the transformers, and the copper component was removed for on-site processing. The facilities included furnaces for melting aluminum and copper, a brick warehouse, and an office building. Numerous piles of scrap metal and equipment were lying uncovered throughout the yard. In 1984, a fire broke out in an area of wooden pallets and scrap iron mounds. During an investigation by the Michigan Department of Natural Resources and the City fire marshal, oil was found near the fire area and near the base of three large transformers. The soil was sampled and found to contain PCBs. During another investigation in 1986, the State found barrels of used PCB-contaminated oil in and around scrap metal piles. Oil leaking from the barrels contained as much as 50 percent PCBs. Additional sampling found the contamination had spread into the backyards of neighboring residences, the sewer leaving the site, and the sewer outfall in the Detroit River. The area surrounding the scrap yard is urban, with 34,000 people living within a mile of the site. Three schools, seven churches, a playground, and a post office are located within 1/2 mile of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

Threats and Contaminants



Sediments in the sewer lines and on-site soils are contaminated with PCBs and heavy metals including arsenic, cadmium, and lead. People who trespass on the site may be exposed to PCBs through direct contact with or ingestion of contaminated soils or sediments. Cleanup activities, such as repaving streets and vacuuming yards and alleys, have reduced the public health threat in the residential areas. There is a possibility that PCBs may bioaccumulate in fish in the Detroit River and pose adverse health effects if the fish are eaten.

Cleanup Approach

The site is being addressed in two stages: interim actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Interim Actions: Beginning in 1986, the EPA excavated the off-site contaminated soil and cleaned the streets and alleys with a pressure sprayer and steel-wire brushes. Alleys and streets that could not be cleaned by the pressure sprayer were repaved with 2 feet of asphalt. Approximately 10,000 cubic yards of soil were removed from backyards, parkways, and vacant lots surrounding the facility. The excavated soil was stored on site. During excavation, some residents were relocated temporarily. A system was installed to control drainage and to treat the collected runoff. In addition, the site was fenced to prevent access. In 1988, the EPA overpacked, or placed in sturdy containers, several hundred capacitors leaking PCB and 30 to 40 drums containing PCB-contaminated oil. About 600 cubic yards of PCB-contaminated debris, the capacitors, and transformers were disposed of at federally-approved facilities. Approximately 45 tons of scrap metal were decontaminated and removed by a local salvage company. The EPA also repaired and upgraded the fence, which had been damaged by vandals. In 1989, the parties potentially responsible for the site contamination were ordered by the EPA to undertake interim safety measures at the site. This involved posting 24-hour security guards at the site; laying a geotextile cover over the waste piles to prevent rainwater from coming into contact with buried wastes; hydroseeding the site; and maintaining the runoff collection and treatment system, as well as all utilities and services at the site. The parties have completed covering the site with a geotextile material and the site has been seeded.



Entire Site: In 1989, the EPA began studying the extent of soil contamination at the site. The study was completed in 1991, and final cleanup measures were selected. The EPA's selected plan for cleanup involves concentrating the PCBs through low-temperature thermal desorption; transporting the condensed PCB material off site for incineration; and disposing of the residuals resulting from the treatment of soil in an on-site containment solid waste cell. The EPA plans to divide the cleanup of the site into various phases, including the decontaminating the soil, controlling the sources of the contamination, assessing the effectiveness of the cleanup, and studying the alleys and sewer lines to ensure there is no threat of residual contamination discharge into the Detroit River. The potentially responsible parties began developing the engineering designs in early 1993. The designs are expected to be completed in 1995.

Site Facts: In 1989, the EPA issued an Administrative Order to several parties potentially responsible for site contamination, requiring them to undertake interim measures to clean up the site. The State conducted a neighborhood blood testing program to determine if people had been exposed to PCBs. Results from the 21 residents living in nine homes next to Carter Industrials indicated that the residents had not absorbed any more PCBs than the amount normally found in the population of the State of Michigan. A Consent Decree was entered in court on June 1993, which required the potentially responsible parties to design the selected remedy and cleanup the site.

Environmental Progress



The numerous interim actions taken to remove the contaminants from the area, fencing the area, and repaving streets and alleyways in the area of the site have reduced the potential for exposure to hazardous substances at the Carter Industrials, Inc. site while final cleanup activities are being planned.

Site Repository

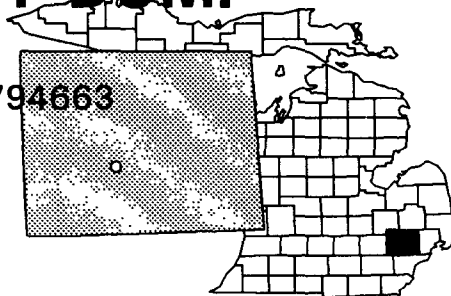


Main Library, Reference Department, Detroit Public Library System, 5201 Woodward Avenue, Detroit, MI 48202

CEMETERY DUMP

MICHIGAN

EPA ID# MID980794663



EPA REGION 5

Oakland County
Rose Township
Rose Center

Other Names:

Rose Township Cemetery Dump

Site Description

The 4-acre Cemetery Dump site, once used as a sand and gravel pit, has been backfilled and cleared. Approximately 300 to 600 barrels containing unknown industrial wastes were believed to be illegally dumped and buried on site in the late 1960s or early 1970s. In 1981, the Michigan Department of Natural Resources (MDNR) excavated a test pit and removed 20 to 30 drum fragments from the site. The fragments were taken to a Federally approved facility. Analysis of the barrel contents indicated the presence of paint sludges, solvents, polychlorinated biphenyls (PCBs), and oils. Approximately 4,400 people live within 3 miles of the site. The closest residence is 300 feet away. All the residences in the area use domestic wells for drinking water.

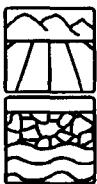
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



The drum fragments and soil on the site contained volatile organic compounds (VOCs), PCBs, and heavy metals including arsenic, cadmium, and lead. People who had direct contact with or accidentally ingested contaminated soil or drum contents may have been at risk.

Cleanup Approach

Response Action Status



Source Control: In 1985, the State selected a remedy to control the source of the contamination by excavating approximately 250 drums and drum fragments and contaminated soils. These drums were disposed of at a federally-approved facility. A fence was installed in 1987. The State completed the cleanup activities in 1989.



Entire Site: In 1989, the State, after extensive sampling and analysis, determined that the removal of the source of contamination had corrected the soil and groundwater contamination; therefore, no further actions were necessary. The State will monitor the groundwater to ensure there are no health threats to the public or the environment. No contaminants were detected in the last groundwater sampling.

Environmental Progress



The removal of drums and contaminated soils from the site have eliminated the potential for exposure to contaminated materials at the Cemetery Dump site. The State will continue to monitor the groundwater to ensure the protection of nearby residents and the environment. In mid-1991, the EPA initiated the process to delete this site from the NPL.

Site Repository



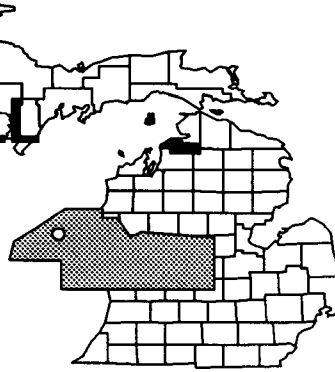
Holly Township Library, 1116 North Saginaw Street, Holly, MI 48442

CHARLEVOIX MUNICIPAL WELL MICHIGAN

EPA ID# MID980794390

EPA REGION 5

Charlevoix County
Charlevoix



Site Description

The Charlevoix Municipal Well site is located on the shore of Lake Michigan and consists of a municipal well system made up of a shallow well connected to a horizontal flume buried beneath the beach of Lake Michigan. This well is no longer in use. The flume collected groundwater and channeled it into the well, where it was pumped to the distribution system. Approximately half of the water entering the system came from Lake Michigan and half from shallow groundwater sources. The City's water system was interconnected with the South Charlevoix Township water supply, which is served by two uncontaminated wells. In 1981, the City of Charlevoix was notified by the Michigan Department of Public Health that its water system was contaminated. The City subsequently installed four monitoring wells near its municipal well with the assistance of the Michigan Department of Natural Resources (MDNR). The EPA became involved with the site in 1982, when it installed nine groundwater monitoring wells throughout the city. In 1982 and 1983, the MDNR conducted several soil boring studies to locate the source of contamination and concluded that part of the contamination may have originated on a local school property. The City installed a system to introduce oxygen into the municipal supply in 1982; however, this aeration system was only partially effective in removing contaminants from the water. This problem was subsequently solved. To date, the sources of contamination of the City's water system have not been fully identified despite investigations conducted by the EPA and the MDNR. It is likely that there is no current source of contamination but that groundwater was contaminated by one or more spills or by a source that was later removed. The off-season population of 3,500 in Charlevoix increases to approximately 10,000 people during the summer months.

Site Responsibility: This site was addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Deletion Date: 12/02/93

Threats and Contaminants



Groundwater and soil were contaminated with various volatile organic compounds (VOCs). All area residents have been connected to the municipal water supply.

Cleanup Approach

Response Action Status



Initial Actions: The EPA constructed a new water intake system and filtration plant using water from Lake Michigan as its source. A buried intake pipe was constructed that connects to the existing City pumphouse. A chlorine diffuser, anchored inside and running the entire length of the intake pipe, disinfects the water. The EPA built a water filtration treatment plant in 1985. The plant became operational in 1987. The intake system and water treatment plant successfully provide drinking water.



Entire Site: In 1985, after completing an extensive study to identify the source of site contamination, the EPA selected the following cleanup methods to address site contamination: allowing the contaminant plumes to dilute under natural flow conditions to Lake Michigan; continuing long-term monitoring of the plumes during the natural purging period; and imposing restrictions on the installation of private wells to be enforced by local health officials. The implementation of the selected remedies was completed in 1989. To solve a problem caused by blockage of water intake by drifting lake sand, the EPA and the State added additional intake piping to improve the water capacity. This site was deleted from the NPL in December 1993.

Environmental Progress



By providing an alternate water supply, the EPA has eliminated the potential of exposure to contaminated drinking water. The restrictions on the installation of private wells and long-term monitoring will continue to protect residents living near the Charlevoix Municipal Well site.

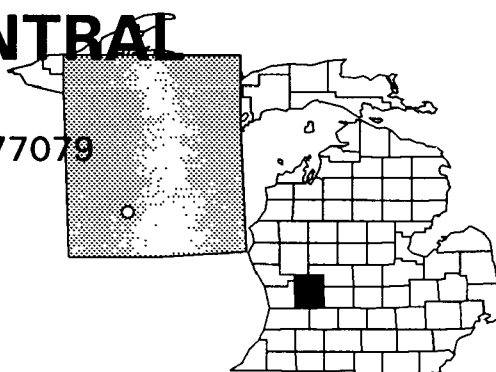
Site Repository



Charlevoix Public Library, 109 Clinroa Street, Charlevoix, MI 49720

CHEM CENTRAL MICHIGAN

EPA ID# MID980477079



EPA REGION 5

Kent County
Wyoming Township
Wyoming

Other Names:
Wolverine Chemical

Site Description

Since 1957, Chem Central has distributed industrial chemicals from this 2-acre site in Wyoming. Between 1957 and 1962, hazardous wastes entered the ground at the facility through a construction flaw in a pipe used to transfer liquids between rail cars and bulk storage tanks. The flaw was repaired after losses were noted in chemical inventories. The Michigan Department of Natural Resources (MDNR) found toxic contaminants in sediments in a ditch 1,000 feet from the site in 1977. The State dammed the ditch and restricted access by fencing and posting signs. The EPA excavated sludge from the ditch in 1978, and with the State, continued to sample soil and groundwater that seeped into a pit. A 1984 State court order required Chem Central to clean up the groundwater and remove contaminated soils from the ditch. Approximately 15,000 people live within 1 mile of the site. All residences are connected to the Grand Rapids municipal water supply, which draws from Lake Michigan and the Grand River. Surface water runoff from the site drains into Cole Drain, which also drains other industrial sites nearby. Cole Drain flows into Plaster Creek, 1/2 mile north of the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY Proposed Date: 12/30/82 Final Date: 09/08/83

Threats and Contaminants



Groundwater contains various volatile and semi-volatile organic compounds (VOCs and SVOCs). Soil is contaminated with phthalates, VOCs, and polychlorinated biphenyls (PCBs). Plaster Creek receives runoff from the site through Cole Drain. Because all residences in the area use the municipal water system, the only threat of exposure is by accidentally ingesting contaminated groundwater or having direct contact with contaminated soils on the site property.

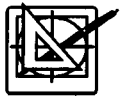
Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1984, Chem Central designed and constructed a purge well and underdrain system to capture contaminants seeping into the groundwater that originated from on site. The company also constructed an air stripping system to treat the extracted groundwater for discharge into the municipal wastewater treatment system. A vapor phase carbon adsorption system treats the off-gases from the air stripping system. In addition, Chem Central excavated, removed, and disposed of contaminated soil and water from the ditch in a federally-approved facility. While the soil and water were being removed, a guard was posted in the area. The empty pit was filled with clean soil. These cleanup activities were completed in 1985.



Entire Site: In 1987, Chem Central, under EPA oversight, began a study to determine the extent of groundwater and surface water contamination and to determine if any soil contamination remained. The study was completed in 1991 and a final cleanup remedy was selected. The remedy includes constructing a soil vapor extraction system to treat contaminated soil; extending the current groundwater pump and treat system; and collecting oil floating in the purge wells and disposing of the collected oil off site. The design of the remedy began in mid-1992 and is expected to be completed in 1995.

Site Facts: In 1987, the EPA and Chem Central signed an Administrative Order on Consent under which the company agreed to study and clean up the site. The EPA issued a Unilateral Administrative Order to Chem Central in April 1992 requiring the company to conduct the design and cleanup activities at the site.

Environmental Progress



The immediate actions have contained most of the contaminated groundwater underlying the site and removed the threat of direct contact with the contaminated sediments and water in the ditch. These actions have reduced the potential for exposure to hazardous materials at the Chem Central site while further cleanup activities are being planned.

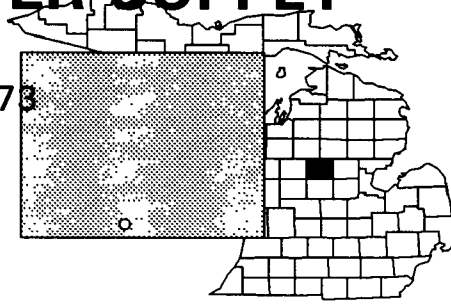
Site Repository



Wyoming Public Library, 3350 Michael Street, Southwest, Wyoming, MI 49509

CLARE WATER SUPPLY MICHIGAN

EPA ID# MID980002273



EPA REGION 5

Clare County
Clare

Other Names:
Clare Municipal Well Field

Site Description

The Clare Water Supply site consists of four production wells (Wells #2, #5, #6, and #7) and their related water treatment and storage facilities. Two of the four wells are contaminated with various volatile organic compounds (VOCs). Pumping from Well #5 was limited in 1982, and the city water supply since has been provided mainly by the blending of water from Wells #2 and #5 with the uncontaminated water from Well #6. The City uses an aeration system to remove iron from the water supply, which also results in volatilization of the contaminants in the other two wells. Several industrial areas bordering the site are believed to be the sources of contamination. Fourteen manufacturing and retail businesses operate in the area around the municipal well field. Historical operations at some of these businesses involved the use of solvents or degreasers. Approximately 3,300 people live within 3 miles of the site. The nearest residence is located less than ¼ mile from the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Groundwater and soil are contaminated with bromoform and VOCs including vinyl chloride, trichloroethone, dichlorethene and dichloroethane. Sediment samples from a nearby drainage ditch contain VOCs. Potential health threats to people stem from ingesting or coming into direct contact with contaminated groundwater, surface water, or sediments.

Cleanup Approach

This site is being addressed in two long-term remedial phases focusing on cleanup of the entire site and the source areas and aquifer.

Response Action Status



Entire Site: In 1990, the EPA selected a remedy, which included installing an air stripper to treat the water from Wells #2 and #5. The air stripper was completed in early 1991. The MDPH will continue to test the municipal water supply on a regular basis to ensure that it remains safe for use.



Source Areas and Aquifer: The potentially responsible parties, under EPA supervision, conducted a study of the source areas and the contaminated aquifer. The EPA evaluated the study findings and selected a final cleanup remedy in 1992. The remedy includes soil vapor extraction and groundwater extraction and treatment. The potentially responsible parties' design of the remedy was approved in 1994. Construction is expected to begin shortly.

Site Facts: In 1985, four companies located west of the well field were identified by the EPA and the Michigan Department of Natural Resources (MDNR) as being potentially responsible for the groundwater contamination. In 1985, the EPA and several potentially responsible parties entered into an Administrative Order on Consent that requires the parties, under EPA and State supervision, to investigate site contamination. In 1991, a Unilateral Administrative Order (UAO) was issued for installation of air strippers on the contaminated wells. In 1993, a UAO was issued in which the parties agreed to perform the site cleanup.

Environmental Progress



The municipal water supply is now protected by an air stripping water treatment system. The water treatment system has reduced exposure to hazardous substances at the Clare Water Supply site while cleanup activities are being planned to address the source areas and the contaminated aquifer.

Site Repository



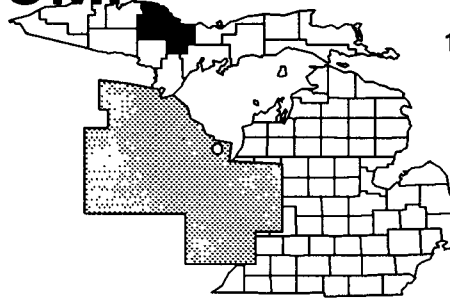
Garfield Memorial Library, 4th and McEwan Streets, Clare, MI 48617

CLIFF/DOW DUMP

MICHIGAN

EPA ID# MID980608970

EPA REGION 5
Marquette County
1 mile north of Marquette



Site Description

The 2-acre Cliff/Dow Dump site is an abandoned waste disposal area. Between 1954 and the early 1960s, the site was used for the disposal of waste materials generated by a nearby charcoal manufacturing facility. Wood tars generated during the production process were burned at the plant, although some of the tar solids were disposed of at the site. The City of Marquette has a population of 23,000. Four residences are located within ½ mile of the site. The Dead River, located 2,000 feet southeast of the site, is considered a good sport fishing area. The City of Marquette obtains its drinking water from Lake Superior.

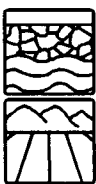
Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Off-site groundwater is contaminated with volatile organic compounds (VOCs) and phenols. The surface soil in the landfill area contains elevated levels of VOCs, phenols and polyaromatic hydrocarbons (PAHs). The potential health risks to people stem from direct contact with or accidental ingestion of contaminated soil and groundwater.

Cleanup Approach

This site is being addressed in two stages: an immediate action and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Action: In 1984, the parties potentially responsible for site contamination installed a fence around the site to restrict access.



Entire Site: Based on a comprehensive investigation into site contamination, the cleanup activities were selected, which include: excavation and incineration of 200 cubic yards of uncovered tar; excavation and biological treatment of 9,200 cubic yards of contaminated fill material; construction of a topsoil cover and revegetation of the fill material; deed restrictions to prevent the installation of drinking water wells within the vicinity of the contaminated groundwater boundaries and the disturbance of fill materials; and groundwater and air monitoring. In the summer of 1990, the potentially responsible parties excavated and incinerated 200 cubic yards of tar. The parties also are preparing the technical plans for implementing the remainder of the selected remedy. Construction is scheduled to begin in 1995, once the technical design is approved.

Site Facts: In 1984, the potentially responsible parties signed a Consent Order agreeing to conduct a study into the nature and extent of contamination at the site.

Environmental Progress



The installation of a fence and the excavation and incineration of tar have reduced the potential for exposure to contaminated materials at the Cliff/Dow Dump site while additional cleanup remedies are being designed.

Site Repository



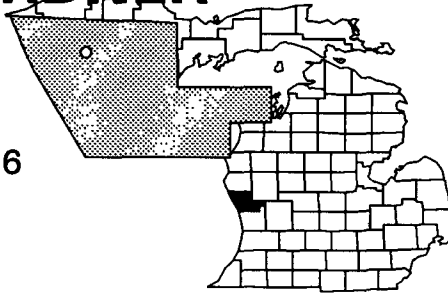
Peter White Public Library, 217 North Front Street, Marquette, MI 49855

DUELL & GARDNER LANDFILL MICHIGAN

EPA ID# MID980504716

EPA REGION 5

Muskegon County
Dalton Township



Site Description

The 40-acre Duell & Gardner Landfill site was an operating municipal landfill from the 1940s to 1975. Before 1969, industrial waste and general refuse were accepted at the site. From 1969 to 1973, the landfill was operated as a licensed solid waste disposal facility. Specific areas were excavated and waste was placed in unlined trenches. In 1971, the Michigan Department of Public Health (MDPH) stipulated that no liquid waste was to be disposed of in the landfill; however, in 1973, the Muskegon County Health Department noticed that liquid waste disposal was still occurring. The landfill ceased operations in 1975. Wastes apparently were deposited on the soil surface and in surface depressions. Materials found on the site included approximately 500 drums in various stages of deterioration, hundreds of laboratory bottles, areas of refuse and debris, and piles of unidentified sludge-like material. Approximately 1,200 people live within a 2-mile radius of the site.

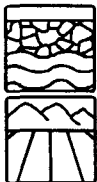
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Volatile organic compounds (VOCs) including chloroform, carbon tetrachloride, aniline, and N,N-dimethylaniline have been detected in on-site groundwater. Polychlorinated biphenyls (PCBs), crystal violet, aniline, and N,N-dimethylaniline were detected in on-site soil. Potential health risks may exist for individuals who have direct contact with or ingest contaminated groundwater or soil.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1986, the EPA constructed an access road to the first drum site. Drums were staged and empty drums were crushed. Contaminated soil under the drums was removed, and the drums and soil were covered. Thirty cubic yards of contaminated soil and drums were transported off site for disposal. The site also was fenced.



Entire Site: The State completed an investigation in 1993 to determine the type and extent of groundwater and soil contamination remaining at the site and to identify alternative technologies for the cleanup. Field work was completed in early 1992, during which a treatability study was conducted to determine the effectiveness of different technologies in treating aniline, N, N dimethylaniline, and crystal violet. Based on the results of the investigation, a remedy for the cleanup of the site soil and groundwater was selected in the fall of 1993. The remedy includes low-temperature treatment for soil, carbon adsorption for groundwater, and capping of the landfill. The design of the remedy began in mid-1994.

Environmental Progress



Excavating, covering, and removing drums and contaminated soil and posting warning signs at the site reduced the potential for exposure to contaminated soil and drums at the site. EPA is currently beginning the design phase of the Superfund cleanup process.

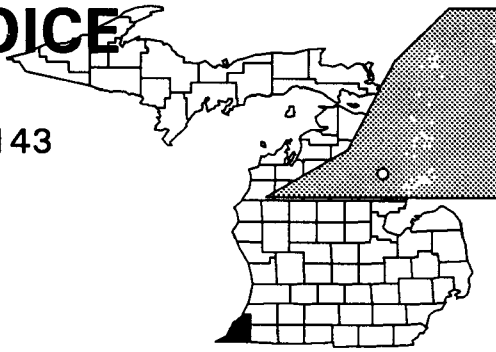
Site Repository



Dalton Township Hall, 1616 East Riley Thompson Road, Muskegon, MI 49445

ELECTROVOICE MICHIGAN

EPA ID# MID005068143



EPA REGION 5
Berrien County
Buchanan

Site Description

Several manufacturing companies have occupied the Electrovoice site since the 1920s. Campbell Transportation Company operated at the site in the early 1930s. Dry Zero Corporation produced insulating materials at the site from the mid-1930s to 1940. From 1940 to 1946, Clark Equipment leased the property to manufacture transmissions for large equipment. In 1946, Electrovoice, Inc. purchased the property and has since used the location to manufacture electronic sound reproduction equipment. Refuse from demolitions was deposited into a natural land depression located on site from the 1920s to the early 1950s. The depression was filled in until it was approximately the level of the remaining Electrovoice property. Portions of the Electrovoice property are built upon this fill material. In 1952, Electrovoice built two lagoons to dispose of liquid electroplating waste produced at its plant on the site. The north lagoon was continuously filled with water, but the south lagoon, which was built to hold overflow from the first lagoon, never received waste. Electrovoice took the lagoons out of service and, in 1962, installed a wastewater treatment facility on site. In 1979, the Michigan Department of Natural Resources (MDNR) inspected the spill containment system that Electrovoice installed after a drain pipe spilled liquid wastes into the north lagoon. Both lagoons were closed by Electrovoice in 1980 and subsequently backfilled. Other potential sources of contamination at the site include a dry well that was used for the disposal of liquid wastes from the plant's paint and glue shop and an underground tank that was used to store oil for fuel. Approximately 7,900 people live within a 3-mile radius of the site, and 10,000 people are supplied with water from nearby municipal wells. McCoy Creek, located 1/2 mile downstream of the site, is used for recreation.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY Proposed Date: 09/08/83 Final Date: 09/21/84

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs). Soils are contaminated with VOCs and inorganics. Samples of lagoon sludge and standing water showed elevated levels of heavy metals and cyanide in the water. Possible health threats stem from direct contact with or ingestion of contaminated groundwater, surface water, sludge, or soil.

Cleanup Approach

This site is being addressed in two long-term stages focusing on the entire site and off-site groundwater.

Response Action Status



Entire Site: In 1987, the MDNR began an investigation into the nature and extent of contamination at the site. Electrovoice took over the study in 1988, and completed it in 1991. A final cleanup remedy was selected for the lagoon area, on-site contaminated groundwater, and the dry well area soils, which calls for capping of the lagoon area, pumping and treating of the on-site contaminated groundwater, and soil vapor extraction with excavation of the dry well area soils. The remedy is being designed currently by Electrovoice, under EPA oversight, and is expected to be completed in 1995.



Off-Property Groundwater: In 1992, the EPA began an investigation into the nature and extent of contamination in off-property groundwater. Once the investigation is complete, scheduled for 1995, final remedies will be selected.

Site Facts: In 1987, the EPA and Electrovoice entered into a Consent Order that required the company to carry out a study of site contamination.

Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Electrovoice site while studies are taking place and cleanup activities are being planned.

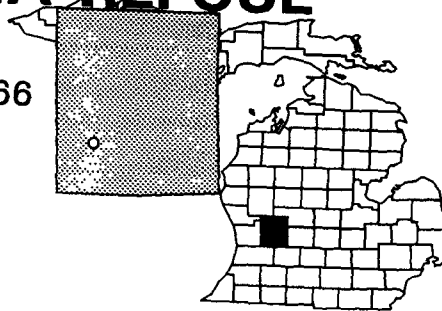
Site Repository



Buchanan Public Library, 117 West Front Street, Buchanan, MI 49107

FOLKERTSMA REFUSE MICHIGAN

EPA ID# MID980609366



EPA REGION 5

Kent County
Walker

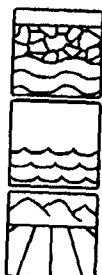
Site Description

The 8-acre Folkertsma Refuse site was operated as a licensed, yet improperly zoned, landfill accepting mostly foundry sand and some construction debris. The property was sold in 1969 and operated as an industrial disposal site until the former owner repurchased it in 1972. Between 1969 and 1972, additional foundry sand and other unidentified wastes were deposited at the site. A pallet repair and manufacturing company erected three pole buildings and started a pallet manufacturing business that is currently in operation. The EPA was notified of past waste disposal activities at the site in 1981. In 1983, the EPA examined information that described the disposal activities on the property and determined that an on-site investigation of possible contamination should be conducted. The investigation was conducted in 1984. The Michigan Department of Natural Resources (MDNR) also investigated the property in 1985 and found 40,000 cubic yards of landfilled waste consisting of foundry sand, chemical products, construction debris, and other industrial wastes from heavy manufacturing operations. However, a later investigation conducted by the EPA estimated that there is 57,000 cubic yards of landfilled waste. Approximately 8,000 people live within a mile of the site.

Site Responsibility: This site was addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 06/10/86
Final Date: 03/31/89

Threats and Contaminants



Groundwater beneath the landfill was contaminated with arsenic. Sediments from two drainage ditches on the property and landfilled materials contained polynuclear aromatic hydrocarbons (PNAs) and heavy metals including arsenic, cadmium, chromium, nickel, and lead. Possible health threats stemmed from direct contact with or ingestion of contaminated groundwater, sediments, or landfilled materials, as well as inhalation of contaminated dusts. Contaminated sediments posed an environmental risk because of the possibility of bioaccumulation of chemicals in local plants and animals.

Cleanup Approach

Response Action Status



Entire Site: The EPA initiated an investigation in 1988 to determine the type and extent of contamination at the site and to identify alternative technologies for cleanup. The study was completed in 1990, and a final cleanup remedy was selected in 1991.

The final cleanup remedy involved excavating contaminated sediments and placing these sediments in the landfill. A clay cap was built over the contaminated sediments and landfill materials. In addition, improved drains provided for continued drainage of the site, and gas vents were placed on each side of the landfill to prevent the buildup of gases. The pallet manufacturing company was relocated to an area north of the landfill limits. Fencing and deed restrictions control access and use of the site, while groundwater and drainage water monitoring ensure the effectiveness of the cleanup. All construction of the cleanup remedies was completed in late 1994. A final close-out report indicating that cleanup has been completed is currently underway.

Environmental Progress



The cleanup activities undertaken at the Folkertsma Refuse site have eliminated the threats to the public and the environment.

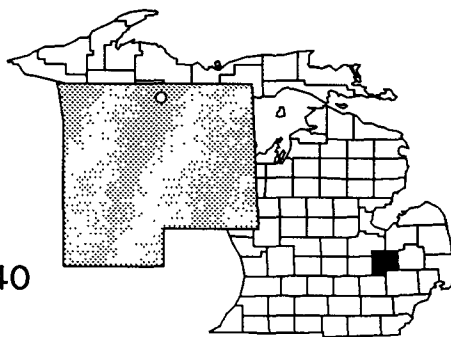
Site Repository



Kent County Public Library, 4293 Remembrance Road, Northwest, Grand Rapids, MI 49504

FOREST WASTE PRODUCTS MICHIGAN

EPA ID# MID980410740



EPA REGION 5

Genesee County
2 miles northwest of Otisville

Other Names:
Forest Waste Disposal Landfill

Site Description

The 112-acre Forest Waste Products site is a 11-acre landfill with nine lagoons. It was licensed from 1972 to 1978 to receive general refuse and wastes. Drummed wastes from various sources were disposed of, and waste oils, sludges, paint and resin wastes, and sulfuric acid were placed in the lagoons. In 1974, the site accepted sludge and waste from an Agrico Chemical Warehouse fire, while in 1975, the site accepted polychlorinated biphenyl (PCB)-contaminated roofing material and contaminated cattle feed. Trenches were dug randomly, industrial wastes were buried with general refuse, and liquid wastes were discharged into the landfill and onto the ground. Wetlands near the site drain into Butternut Creek, which eventually discharges into the Flint River. The site is underlain by two drinking water aquifers. There are 50 residences near the site, and the area around the site is used for hunting.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs). The lagoon subsurface soils showed significant concentrations of lead, PCBs, and VOCs. The landfill soil is contaminated with lead, chromium, phthalates, VOCs and polycyclic aromatic hydrocarbons (PAHs). Potential risks may exist for individuals who have direct contact with or ingest contaminated groundwater or soil. However, the site is fenced, thereby reducing potential entry by unauthorized individuals. Wetlands also may be threatened.

Cleanup Approach

This site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of the lagoons and cleanup of the landfill, with groundwater monitoring.

Response Action Status



Immediate Actions: Under EPA monitoring, the parties potentially responsible for the contamination installed a fence around the site in 1984.



Lagoons: The EPA selected the following cleanup actions for the lagoons: excavation, treatment, and disposal of 4,000 cubic yards of contaminated sludges, sediments, and soils in an off-site landfill; and extraction, treatment, and disposal of 110,000 gallons of liquid wastes at a licensed treatment facility. The EPA completed the technical specifications to clean up the lagoon in 1988. Under EPA monitoring, the potentially responsible parties initiated the cleanup activities in 1988. The work was completed in 1990.



Landfill: The EPA has selected the following actions for cleanup of the landfill: excavation and off-site incineration of approximately 4,000 drums and 1,000 cubic yards of associated contaminated soils; installation of a containment system including a cover, a slurry wall, a dewatering system, and a leachate collection system; and treatment and disposal of collected leachate. The EPA began monitoring groundwater in 1989; the State took over the 30-year monitoring program in 1991. The EPA currently is in the process of designing the technologies to be used in the landfill cleanup work.

Site Facts: The EPA issued an Administrative Order on Consent, requiring the potentially responsible parties to clean up the lagoons.

Environmental Progress



Installing a fence and the treating and disposing of sludges, soils, and liquids in the lagoons have reduced the potential for exposure to contaminated materials at the Forest Waste Products site while the design activities are continuing.

Site Repository

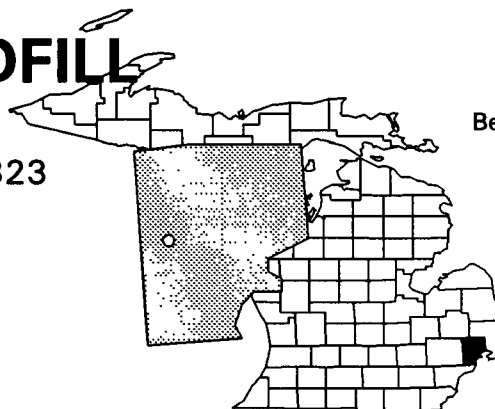


Forest Township Library, 130 East Main Street, Otisville, MI 48463

G & H LANDFILL

MICHIGAN

EPA ID# MID980410823



EPA REGION 5

Macomb County
Between Utica and Rochester

Site Description

The 80-acre G & H Landfill site operated as a waste oil recovery facility from 1955 to 1967 and as a municipal refuse disposal site until 1974. During operations, large amounts of waste oil were dumped into two unlined storage ponds. In addition, solvents, paint thinners, and other compounds were disposed of in "paint pits" located throughout the landfill. The Rochester-Utica State Recreational Area borders the site, and a series of interconnected shallow ponds formed by past gravel mining exist in this area. Some of the ponds are contaminated with waste oil and polychlorinated biphenyls (PCBs). Approximately 54,000 people live within 3 miles of the site.

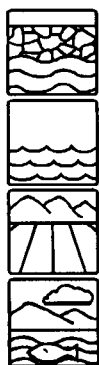
Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/03/83

Threats and Contaminants



Groundwater, surface water, soil, and sediments are contaminated with volatile organic compounds (VOCs), phthalates, polycyclic aromatic hydrocarbons (PAHs), PCBs, and heavy metals. People who accidentally touch or ingest contaminated groundwater, surface water, soil, or sediments may suffer adverse health effects. Residents who use the off-site ponds for fishing may be harmed through direct contact with or ingestion of contaminated surface water or fish. In addition, the pollutants may be harmful to wildlife living in or near the wetlands.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1982, the EPA installed 18 monitoring wells for groundwater sampling. A fence was constructed to prevent the recreation area users from coming into contact with the hazardous waste seeps. Three overflow dams also were installed. When the oily seeps extended beyond the fenced area, the EPA installed a skimmer to prevent the floating oils from migrating. In 1983, the EPA installed clay barriers in the path of the seepages to restrict the movement of PCB-contaminated oil. The existing fence was extended to surround the new seepages. By 1986, the clay barrier and fence had deteriorated in the swampy areas. The EPA blocked all recreational vehicle trails with earthen mounds to prevent access to the site. In addition, a main entrance gate was established, warning signs were posted, and security guards were hired to discourage trespassers. The EPA also began preparing for the site cleanup by constructing a road and a barn to contain three storage tanks of recovered wastes. Drains and culverts were constructed to restrict the flow of PCB-contaminated oil. In 1987, an access road collapsed, blocking the drains carrying runoff from the site. The drain was cleared, and the roadway was stabilized. In 1988, the EPA installed a fence around the entire site. A water treatment and leachate collection system also is being maintained in the oil seep area.



Entire Site: In 1990, the EPA decided to contain the contamination at the landfill by capping and installing a partial slurry wall; pumping and treating groundwater outside of the slurry wall; excavating, consolidating, and capping PCB-contaminated soil outside of the slurry wall; and providing municipal water connections as needed. Wetlands affected by the site will be restored. The parties potentially responsible for site contamination began the cleanup design in the fall of 1993. The design is expected to be completed in early 1995, but may be delayed due to the harsh winter weather.

Environmental Progress



The numerous immediate actions described above have reduced the potential for exposure to contaminated materials at the G & H Landfill site while final cleanup activities are being planned.

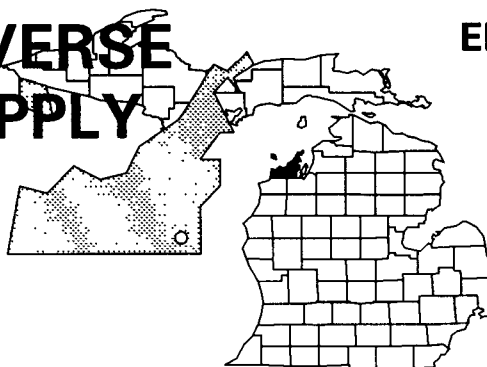
Site Repository



Shelby Township Library, 51680 Van Dyke Avenue, Utica, MI 48316

GRAND TRAVERSE OVERALL SUPPLY COMPANY MICHIGAN

EPA ID# MID017418559



EPA REGION 5

Leelanau County
Greilickville

Site Description

The Grand Traverse Overall Supply Company (GTOS) site is a commercial laundering facility covering 1 acre in Greilickville. The facility was built in 1953; dry-cleaning machines were installed in 1968 and 1973. The facility is no longer used for dry cleaning, and the machines were removed in the early 1980s. A dry well was used to collect waste until 1955, but seepage lagoons were constructed in 1955, 1961, and 1968 and collected wastes until 1977, when the facility began discharging waste to the sanitary sewer system. In 1978, the Michigan Department of Natural Resources discovered that groundwater in the area was contaminated with volatile organic compounds (VOCs). At least 10 wells were found to be contaminated, including a well used by an elementary school adjacent to the facility. The school and other residences used bottled water until new wells in a deeper, confined aquifer were installed. The contaminated wells were capped when the new wells were drilled. In the late 1970s, the lagoons on the site were drained and filled with gravel, and contaminated soils around the dry well and barrels of waste sludge were removed. Approximately 1,200 people live within 3 miles of the site. The nearest residence is 250 feet south of the facility. Cedar Lake, Cedar Lake Outlet, and Grand Traverse Bay are all less than 1/4 mile away from the site. Cedar Lake and Grand Traverse Bay are used for swimming and other recreational activities.

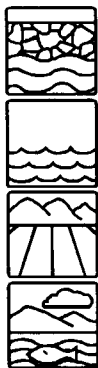
Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



VOCs were found in the groundwater. Since contaminated wells have been replaced, contact with contaminated groundwater no longer poses a threat. Lagoon sediments, dry cleaning waste sludges, soil from the dry well, and wastewater and cooling water were contaminated with trichloroethylene (TCE) and perchloroethylene. There was a potential for contamination of Cedar Lake, Cedar Lake Outlet, and Grand Traverse Bay with TCE prior to cleanup actions. People who had direct contact with or accidentally ingested contaminated groundwater, soil, or surface water may have been at risk. If the contaminated groundwater plume had migrated towards Grand Traverse Bay, the wildlife living in or around the Bay could have been exposed to pollutants.

Cleanup Approach

Response Action Status



Initial Actions: Contaminated wells have been replaced by new, deeper wells. In addition, the lagoons were drained in the late 1970s, and sludge and contaminated soils were removed.



Entire Site: In 1988, the EPA began a study to determine the nature and extent of the groundwater, soil, and surface water contamination at the site. The study, completed in 1992, showed that the initial cleanup actions have addressed the threats to the people and the environment. Therefore, EPA has determined that no further cleanup actions are necessary.

Environmental Progress



Replacement of contaminated wells and removal of contaminated soils have eliminated the potential for exposure to site-related contaminants. The EPA has determined that no other actions are required at the Grand Traverse Overall Supply Company site.

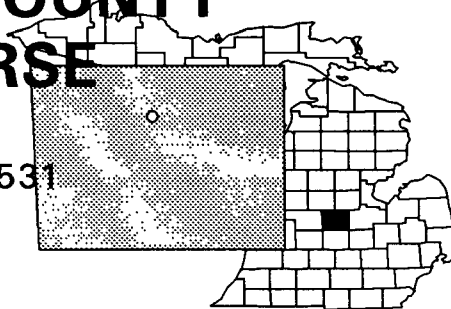
Site Repository



Traverse Area District Library, 322 6th Street, Traverse City, MI 49684

GRATIOT COUNTY GOLF COURSE MICHIGAN

EPA ID# MID980794531



EPA REGION 5

Gratiot County
St. Louis

Other Names:
Edgewood Farms Golf Course Site

Site Description

The Gratiot County Golf Course site covered 3 acres in St. Louis. From 1956 until 1970, the Michigan Chemical Corporation, later purchased by the Velsicol Chemical Corporation, burned and disposed of industrial waste, including the pesticide DDT, on the site. Approximately 2,000 to 3,000 gallons of hazardous waste were disposed of on the site. Waste seeped from the site into the Pine River, which is used for recreational activities. In 1982, Velsicol, under State supervision, cleaned up the site and agreed to clean up two other sites for which it is potentially responsible: the Gratiot County Landfill and the Velsicol Plant in St. Louis. Approximately 2,500 people live within 1 mile of the site. About 5,500 people use groundwater for drinking water within 3 miles of the golf course. Two municipal water wells are located within 3 miles of the site.

Site Responsibility: This site was addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/01/82

Final Date: 12/01/82

Deleted Date: 09/08/83

Threats and Contaminants



Groundwater was contaminated with volatile organic compounds (VOCs) and heavy metals. Surface water was contaminated with benzene. All cleanup actions have been completed, and the site no longer poses a threat to public health or the environment.

Cleanup Approach

Response Action Status



Immediate Actions: Contaminated sediments were removed to the Velsicol Plant and disposed of in accordance with the cleanup plan for that site. Additionally, contaminated groundwater underlying the golf course area is continuous with contamination at neighboring sites and was addressed as part of their cleanup strategy.

Site Facts: The Gratiot County Golf Course site was placed on the first proposed NPL in December 1982. All cleanup actions were completed before the first final NPL was established. In November 1982, Velsicol agreed to a combined settlement for cleanup of this site and two others in Michigan, the Gratiot County Landfill and the Velsicol Plant in St. Louis.

Environmental Progress



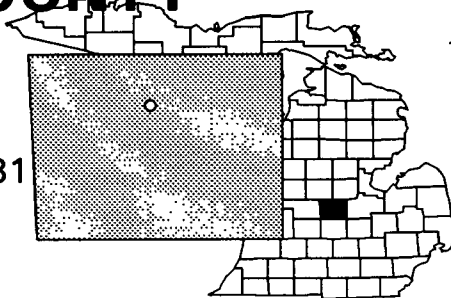
The immediate actions performed have removed the sources of contamination and eliminated any potential threats at the site. Site evaluations determined that no additional cleanup work was required, and the Gratiot County Golf Course site was deleted from the NPL in 1983. The site continues to be used as a recreational golf course while cleanup actions continue at the related NPL sites in the area.

GRATIOT COUNTY LANDFILL MICHIGAN

EPA ID# MID980506281

EPA REGION 5

Gratiot County
1/2 mile southeast of St. Louis



Site Description

The Gratiot County Landfill site covers 40 acres southeast of St. Louis. Prior to 1977, the Michigan Chemical Corporation (later purchased by Velsicol Chemical Corporation) disposed of various plant wastes, including 269,000 pounds of polybrominated biphenyls (PBBs), at the landfill. The landfill also accepted general refuse. In 1977, the State discovered elevated levels of contaminants in shallow aquifers and in several nearby ponds. In addition, the State learned that in at least one, possibly two, places the wastes were in direct contact with the immediately underlying aquifer. The potential existed for contamination of the deeper aquifers supplying drinking water for the region. Approximately 5,300 people live within 3 miles of the landfill; about 1,500 people are located within a mile. Municipal water wells serving 4,100 people are located within 3 miles of the site. The Pine River is located approximately 1 1/2 miles west of the site.

Site Responsibility: The site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/22/81

Final Date: 09/08/83

Threats and Contaminants



Groundwater and surface water contain polybrominated biphenyls (PBBs). Potential health risks include accidental ingestion of or direct contact with contaminated groundwater and surface water.

Cleanup Approach

The site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: Between 1977 and 1980, various hydrogeological studies were performed at the site. Based on these studies, the Michigan Department of Natural Resources (MDNR) prepared an Environmental Impact Assessment and developed alternatives for cleanup of the site. A remedy for the site was selected in 1981 and in 1984, the State, with Velsicol Chemical Corporation, took action to minimize the migration of contaminants from the landfill. This included regrading the surface to direct runoff from the landfill area, covering the waste with clay to prevent rainwater from coming into contact with the buried wastes, and constructing a slurry wall along the property boundary to contain contaminated groundwater. A groundwater purge system was constructed and a 5-acre evapo-transpiration bed was installed to dispose of water from the purge wells. However, the groundwater purge system was never used. In 1992, the State completed an investigation that showed that the slurry wall is ineffective in halting groundwater flow at several locations. Low levels of the volatile organic compounds (VOCs) benzene, chloroethane, 1,1 dichloroethane, and 1,2 dichloroethane were detected outside the slurry wall. No PBBs were detected in groundwater samples. In 1994, the State began another investigation to determine the extent of contamination outside the landfill. An additional objective of this investigation, due to be completed in 1995, is to evaluate alternatives for groundwater cleanup if necessary at the site.

Site Facts: In November 1982, Velsicol Chemical Corporation agreed to a combined settlement for cleanup of this site and two others in Michigan, the Gratiot County Golf Course and the Velsicol Plant in St. Louis.

Environmental Progress



The surface regrading, covering of the waste, and construction of a slurry wall have reduced the potential for exposure to hazardous materials at the Gratiot County Landfill site while further cleanup activities are being planned.

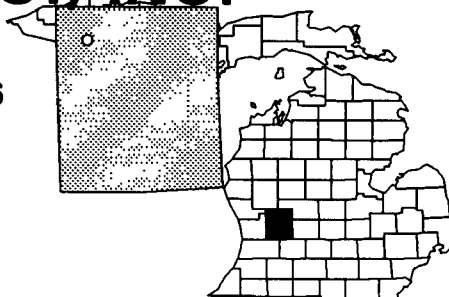
H. BROWN CO., INC.

MICHIGAN

EPA ID# MID017075136

EPA REGION 5

Kent County
Grand Rapids
Walker



Site Description

The 3½-acre H. Brown Co., Inc. site is an active automobile and forklift battery recycling facility. The site and surrounding area may have been used as a municipal waste disposal landfill before the H. Brown Company began operations on the property in 1961. Initially, the company's operations involved buying, dismantling, processing, and selling scrap metal and junk. Later, the company focused on reclaiming lead from used batteries. Until 1978, the lead reclamation process involved dismantling batteries and draining battery acid onto an area of the site. Between 1961 and 1978, 170,000 to 460,000 gallons of battery acid may have been drained. The company discontinued its lead reclamation activities in 1982, but continues to collect used batteries and sell them to other businesses. Responding to a request by the Michigan Department of Natural Resources (MDNR), the company installed liquid collection pans and stainless steel storage tanks on the site in 1978 to collect and contain drummed battery acids instead of draining them on the ground. Acid that was stored in the tanks later was taken to an off-site facility for disposal. Surface water from the site drains through a ditch to a wetland, which then empties into the Grand River ¼ mile east of the site. Approximately 3,000 people live within a 3-mile radius of the site. The source of municipal water is Lake Michigan, with supplementary water drawn from the Grand River each summer. The site and surrounding properties are in the flood plain of the Grand River.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 04/10/85
Final Date: 06/10/86

Threats and Contaminants



Lead and volatile organic compounds (VOCs) are contaminating the air, groundwater, and soil. Wastewaters on the property contain heavy metals including copper, nickel, lead, and chromium. Potential health threats include accidentally ingesting or coming in direct contact with contaminated groundwater, soil, or wastewater or breathing contaminated air. The Grand River and nearby wetlands are threatened by contaminants from the site.

Cleanup Approach

This site is being addressed in two phases: interim actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Interim Actions: In spring 1991, the EPA took measures to limit the scattering of dust from surface soils and fenced the property to the north of the facility to limit access to the area where soils are contaminated with lead. Later, the potentially responsible parties erected a fence and performed limited air monitoring. The potentially responsible parties have not yet completed all air monitoring requirements.



Entire Site: The EPA initiated an investigation in 1988 to determine the nature and extent of groundwater, soil, air, and sediment contamination at the site and to identify alternative cleanup remedies. The investigation was completed in late 1992. A remedy was selected in 1992 calling for solidification/stabilization of contaminated soils, installation of a clay cap over the site, construction of a slurry wall surrounding the site, and investigation of deep groundwater conditions. Design of the remedy began in 1993 and is expected to be completed in 1995.

Site Facts: Under a Unilateral Administrative Order, the potentially responsible parties were required to erect a fence and monitor the air. All air monitoring requirements under the Order have not been completed to date. The U.S. Army Corps of Engineers, under an interagency agreement with the EPA, is conducting the design of the remedy.

Environmental Progress



Interim actions to control dust disturbance and restrict area access have reduced the potential for exposure to contaminated materials while the design of the final remedy is being prepared.

Site Repository



Kent County Public Library, Walker Branch, 1331 Walker Village Drive, Walker, MI 49504

Walker City Hall, 4243 Remembrance Dr., Walker, MI 49504

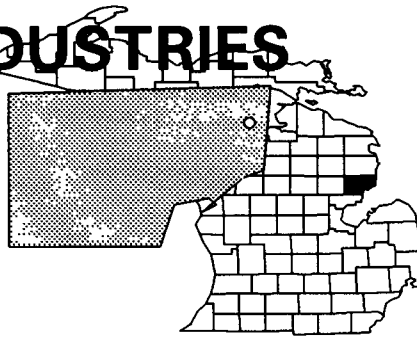
HEDBLUM INDUSTRIES

MICHIGAN

EPA ID# MID980794408

EPA REGION 5

Iosco County
Near Oscoda



Site Description

The Hedblum Industries site is situated on 10 acres in a mixed-use, industrial, and residential area near Oscoda. From 1958 through 1985, the site was leased to a series of industrial firms that manufactured automobile parts. The Hedblum Industries site first came to the attention of the Michigan Department of Natural Resources (MDNR) Water Quality Division during a routine inspection of the facility in 1972. At that time, Thompson Industries was engaged in the assembly of anti-rattling devices for the automotive industry. Cooling and rinse waters were discharged from the plant directly onto the ground. The MDNR received a complaint from a resident near the plant regarding a contaminated well in 1973. During another inspection, the MDNR was informed that every 2 weeks from 1968 to 1972, Thompson had dumped approximately 40 gallons of trichloroethylene (TCE) from a degreaser onto the ground. The State estimates that 4,000 gallons of TCE were dumped over this 4-year period. Samples from several residential wells indicated that two of them were contaminated with TCE. As a result, the State recommended that local residents not use their wells. The affected residents replaced their contaminated wells with deeper ones in an attempt to tap an uncontaminated water supply. Two more wells that were found to be contaminated in the Au Sable Heights area in 1975 were replaced with deeper ones. In 1977, the local health department received a complaint about a strong odor from one of the replacement wells, and sampling indicated that the well also had become contaminated with TCE. By 1978, Oscoda had extended water lines into the Au Sable Heights subdivision and began providing an alternate water supply to the subdivision. Some property owners in the subdivision elected not to be connected to the Oscoda water system. The Oscoda County Health Department continued to assess conditions at the site and sampled liquids contained in an underground storage tank near the northeastern side of the site in 1980. In 1981, the State installed seven monitoring wells, determined that the groundwater flow beneath the site was to the northeast, and confirmed solvent contamination. In 1985, the Hedblum Industries property was purchased by Aircraft Tool Supply, which currently produces aircraft parts at the site. The population of the area is approximately 13,700. The closest residence is about 350 feet from the site. An industrial park is located less than a mile north of the site. Most of the population of the towns of Oscoda and Au Sable live within a 3-mile radius of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater and soil are contaminated with volatile organic compounds (VOCs), including TCE. Surface waters of the bayou northeast of the Au Sable Heights subdivision are contaminated with VOCs, including TCE and vinyl chloride. Residents of Au Sable Heights who use private wells may be exposed to contaminants when drinking or using groundwater. Sampling of residential wells in 1990 found no VOC contaminants above detection limits. Since groundwater flow from the site is to the northeast in the direction of the bayou, area residents who fish there may be exposed to site-related contaminants when coming into direct contact with surface water and sediments. Contaminants could migrate into the Au Sable River through sediments and surface waters of the bayou and a creek that feeds into the river.

Cleanup Approach

Response Action Status



Entire Site: After a careful evaluation of several alternatives, the EPA chose the following methods to address site contamination in 1989: extraction and treatment of contaminated groundwater; monitoring of groundwater in the Au Sable Heights subdivision during groundwater treatment; abandonment of six groundwater monitoring wells; and collection and analysis of on-site soil samples. A potentially responsible party began designing the groundwater treatment system in 1990. The design and construction of the cleanup technologies was completed in 1992. Groundwater cleanup is currently underway. It is expected that cleanup standards will be met by 1998. Analysis of the additional soil samples showed that there is no need for soil cleanup.

Environmental Progress



All construction at the site is complete, and the potentially responsible parties are currently implementing groundwater treatment. While this is taking place, the EPA has determined that the site poses no immediate danger to the surrounding communities or the environment.

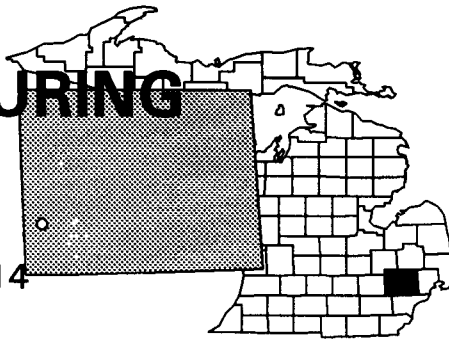
Site Repository



Oscoda Public Library, 110 South State Street, Oscoda, MI 48750

HI-MILL MANUFACTURING COMPANY MICHIGAN

EPA ID# MID005341714



EPA REGION 5

Oakland County
Highland Township

Site Description

The Hi-Mill Manufacturing site is located on 4½ acres in a sparsely-populated area in Highland Township. The Hi-Mill Manufacturing Company began making tubular aluminum, brass, and copper parts in 1946. Operations at Hi-Mill consisted of two main processes: anodizing, a process used to brighten metals; and degreasing, a process to clean them. Metals were bathed in tanks containing acids that periodically were emptied into a clay-lined lagoon. The Michigan Department of Natural Resources (MDNR) received complaints from Hi-Mill employees of the potential contamination of the plant's drinking water supply in 1972, and subsequent sampling of on-site wells and an adjacent marsh detected contamination from heavy metals. In 1976, Hi-Mill built a second, smaller lagoon south of the original lagoon to contain overflow. On two separate occasions in 1976 and 1977, the big lagoon overflowed into the marsh bordering the site. Hi-Mill applied for a National Pollutant Discharge Elimination System Permit (NPDES) to cover such overflows. The EPA did not concur with a permit being issued to Hi-Mill by the State. As a result, the MDNR ordered the company to stop discharging untreated wastewaters into the lagoon and requested that Hi-Mill design a wastewater recycling program. Although the firm implemented the recycling system in 1981, the already-contaminated lagoons remained a concern. In an attempt to clean up the big lagoon, liquid was evaporated in the lagoon using a spray evaporation technique. Particles were carried by the wind and deposited downwind of the plant onto State land around Waterbury Lake. The MDNR ordered Hi-Mill to stop this practice in 1983. Hi-Mill then cleaned up the big lagoon by excavating and backfilling. The immediate area surrounding the site is sparsely populated and rural. The nearest homes are located approximately 2,000 feet southeast of the site, along Waterbury Road. Approximately 13,600 people obtain drinking water from private wells within 3 miles of the site.

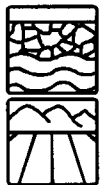
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

Threats and Contaminants



Groundwater in the shallow groundwater unit below the Hi-Mill property and Highland Road is contaminated with volatile organic compounds (VOCs) including trichlorethylene (TCE), 1,2-dichloroethylene (DCE), and vinyl chloride (VC). Surface and subsurface on-site soil was contaminated with organic and inorganic compounds. Sediment and surface water in Waterbury Lake and Target Pond does not appear to be adversely impacted by inorganics. There is no health risk to current workers or future residents from exposure to site soils. Groundwater from the shallow groundwater unit is not used; therefore, there is no health risk to current workers or future residents from exposure to contaminated groundwater.

Cleanup Approach

Response Action Status



Immediate Actions: Hi-Mill, under MDNR supervision, removed 142 cubic yards of contaminated soil, 34,400 gallons of contaminated sludge, and 63,300 gallons of contaminated water from the big lagoon. Hi-Mill filled in the lagoon with sand and clay. A new well was installed on site in 1989 to provide Hi-Mill employees with safe drinking water. Before the new well was hooked up, Hi-Mill provided its employees with bottled water.



Entire Site: The Hi-Mill Manufacturing Company, under EPA and MDNR oversight, conducted intensive studies between 1989 and 1992 to determine the nature and extent of contamination at the site. Based on the results of this study, a "No Action with Groundwater Monitoring and Institutional Controls" remedy was selected by the EPA in the fall of 1993, since the contaminated shallow groundwater unit is not used. Institutional controls will ensure that the affected groundwater is not used in the future.

Site Facts: A Consent Order was signed in 1988 between Hi-Mill and the EPA, requiring the company to conduct a study of site contamination.

Environmental Progress



The immediate actions performed by the Hi-Mill Manufacturing Company have reduced the spread of contamination and the possibility of direct contact with hazardous materials at the site. Groundwater monitoring and institutional controls are in progress to ensure the protectiveness of these actions to the public and the environment.

Site Repository



Highland Township Library, 205 West Livingston Street, Highland, MI 48031

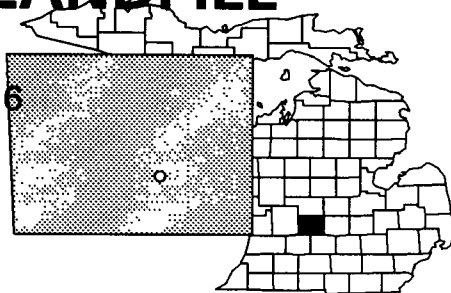
IONIA CITY LANDFILL

MICHIGAN

EPA ID# MID980794416

EPA REGION 5

Ionia County
Ionia



Site Description

The Ionia City Landfill site is a former landfill covering 20 acres in Ionia. From the 1930s until it closed in 1969, the City owned and operated the site for the disposal of municipal wastes. Although closed, wastes continued to be periodically disposed of at the site through the early 1970s. A portion of the site later became a recreational area. In 1981, citizen concerns led to an investigation that discovered buried drums, as well as drums on the surface of the landfill. Some drums were in the flood plain of the Grand River. An unknown number of drums are buried in an area approximately 1/3 acre in size, located in the north central portion of the site. In 1981, the State excavated about 100 drums, many containing industrial liquids and some leaking. The City placed snow fences around the excavated drums. Approximately 6,000 people live within 1 mile of the site, and the nearest residence is about 50 feet away. The municipal well field is about 1 mile northwest of the site. A recreational park is located across the street from the landfill, and a tributary to the Grand River forms the eastern boundary of the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



Heavy metals, including chromium, barium, and lead, were found in soil. Groundwater is contaminated with volatile organic compounds (VOCs) such as vinyl chloride and the heavy metal chromium. People who come into direct contact with or accidentally ingest contaminated groundwater or soil may be at risk. The contamination at the site may harm wildlife living in or around the area.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the sources of contamination at the site.

Response Action Status



Immediate Actions: In 1985, the parties potentially responsible for site contamination constructed a security fence around the site, removed exposed surface drums, and posted warning signs. A partial clay covering was installed to prevent rainwater from coming into contact with buried wastes and to prevent contaminants from migrating off the site.



Source Control: In 1989, the EPA selected a remedy to clean up the site using in-situ vitrification. This technique melts the waste material and contaminated soils with an electric current to destroy, remove, or permanently immobilize hazardous substances. The potentially responsible parties currently are designing the technical specifications for the remedy to meet performance criteria established by the EPA. Construction is scheduled to begin in late 1995.

Site Facts: The EPA expects to initiate an additional cleanup phase at the Ionia City Landfill to address cleanup of contaminated groundwater.

Environmental Progress



By constructing a security fence to restrict access to the Ionia City Landfill site, removing the exposed contaminated drums, and installing a clay cover to prevent contaminant migration, the parties potentially responsible for site contamination have reduced the potential for exposure to hazardous materials. The selected source control remedy for the site currently is in the design phase, with the cleanup activities scheduled to begin in 1995.

Site Repository

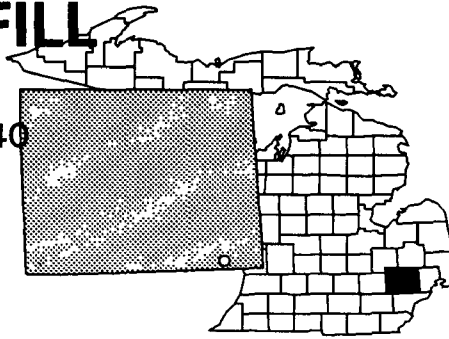


Hall-Fowler Memorial Library, 126 East Main Street, Ionia, MI 48846

J & L LANDFILL

MICHIGAN

EPA ID# MID980609440



EPA REGION 5

Oakland County
Rochester Hills

Other Names:
Avon Township Landfill

Site Description

The J & L Landfill covers approximately 17 acres in Rochester Hills. From 1951 to 1980, approximately 12¼ million cubic feet of wastes were buried at the site up to 25 feet deep. Wastes included dusts from emission control devices in electric furnaces and alkaline slag from electric furnaces involved in stainless steel production. The landfill has no liner and is located in an area consisting of layers of sand and gravel extending between 18 and 35 feet below the surface. These materials facilitate the movement of contaminants into the groundwater. The area surrounding the landfill is residential and light industrial. Ten operating or closed disposal facilities are located in the vicinity. Approximately 1,500 people live within a mile of the site. Some of these residents depend on shallow wells, and the nearest drinking water well is located less than 600 feet from the landfill. Ladd Drain borders the site and flows into the Clinton River. The river flows through the Rochester-Utica Recreation Area less than 1 mile from the landfill.

Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 06/10/86

Final Date: 03/31/89

Threats and Contaminants



The emission control waste dusts and sediments at the landfill are contaminated with heavy metals including manganese, chromium, and nickel. People could be exposed to contaminants in the dusts and sediments. Groundwater contamination also is a possible significant threat, because the groundwater table comes into direct contact with the wastes in one area of the site.

Cleanup Approach

The site is being addressed in three stages: interim actions and two long-term remedial phases focusing on the cleanup of the current landfill cap and the landfill contents and the groundwater.

Response Action Status



Interim Actions: Many of the residents using the shallow wells as a drinking water source have received hook-ups to the city water supply.



Landfill: The EPA conducted an investigation to determine the type and extent of contamination at the landfill in 1991. During this process, the EPA sampled and tested the groundwater, soil, surface water, and sediments in Ladd Drain. The remedy was selected in the summer of 1994. EPA's cleanup plan includes a landfill cap consisting of a 1-foot clay liner, a flexible membrane liner, a geonet and geotextile fabric drainage layer, and a 42-inch protective layer. The design of the cleanup will begin shortly.



Groundwater: An investigation into the nature and extent of groundwater contamination is currently underway.

Environmental Progress



After listing the J & L Landfill site on the NPL, the EPA determined from preliminary evaluations that the site does not pose an immediate threat to the surrounding community or the environment. However, there is a potential risk associated with long-term groundwater consumption due to the area-wide groundwater contamination problem. Previous results indicate that it has not migrated off site or downgradient.

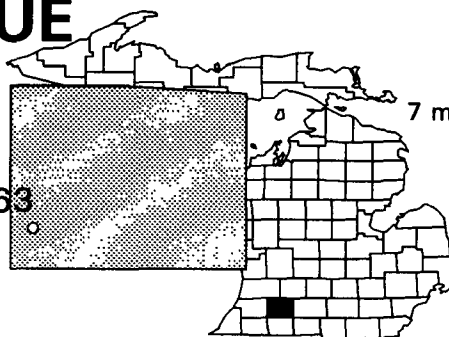
Site Repository



Rochester Hills Public Library, 500 Olde Towne Rd., Rochester, MI 48307
Rochester Hills City Hall, 1000 Rochester Hills Dr., Rochester Hills, MI 48309

K & L AVENUE LANDFILL MICHIGAN

EPA ID# MID980506463



EPA REGION 5

Kalamazoo County
Oshtemo Township

7 miles west of downtown Kalamazoo

Other Names:

West KL Avenue Landfill
Kalamazoo KL Landfill
Kalamazoo County Landfill
Oshtemo Township Landfill

Site Description

The K & L Avenue Landfill is a former sanitary landfill covering 87 acres in Oshtemo Township. The site served as a local garbage dump for the Township from the 1960s until 1968, when it became the county sanitary landfill. Approximately 5 million cubic yards of solid waste were disposed of at the site. The landfill was closed in 1979, after contaminants were found in residential wells. The County provided bottled water to the affected residences and covered about 5 acres of the landfill to prevent the migration of contaminants. In 1980, 36 homes were connected to a new water main, and in 1981, ten deeper wells were installed to replace eight existing contaminated wells. Approximately 11,000 people live within 3 miles of the landfill. The area surrounding the site is rural residential. The nearest residence is adjacent to the site. The landfill is about 200 feet southwest of Bonnie Castle Lake and 1 mile east of Dustin Lake. Both bodies of water are used for recreation, including fishing.

Site Responsibility: The site is being addressed through Federal, County, State and Potential Responsible Parties actions

NPL LISTING HISTORY

Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs), phenols, and heavy metals. Soil in isolated areas shows low levels of polychlorinated biphenyl (PCB) contamination. All affected water wells have been replaced with deeper wells that draw from the lower, uncontaminated aquifer or with city water lines. Therefore, the groundwater presently poses little or no threat to public health.

Cleanup Approach

The site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: In 1980 and 1981, the County of Kalamazoo either installed new wells or provided connections to a public water supply for residences affected by contaminants from the landfill.



Entire Site: In 1990, the EPA completed an investigation to determine the type and extent of contamination at the site, and selected cleanup remedies. These include: continued monitoring of groundwater, surface water, and air; deed restrictions on the use of the shallow aquifer as a drinking water source; groundwater extraction and treatment by enhanced bioremediation; discharge of the treated groundwater back into the aquifer or an infiltration pond; fencing of the site; deed restrictions on the construction of buildings on the site or adjacent to the site; installation of a landfill cap; and installation and monitoring of gas vents throughout the landfill. The engineering design of this remedy began in 1994.

Environmental Progress



By replacing contaminated water supplies, the County is protecting nearby residents from site-related contaminants at the K & L Avenue Landfill while the selected cleanup activities are being planned.

Site Repository

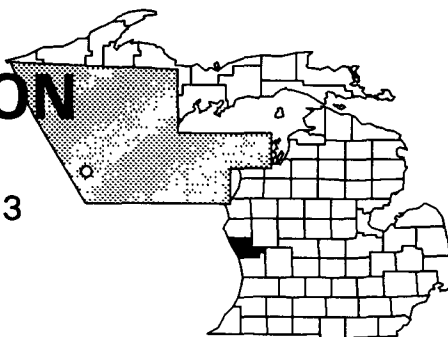


Oshtemo Township Branch of the Kalamazoo County Public Library
7265 West Main Street, Kalamazoo MI

Oshtemo Township Hall, 7275 West Main Street, Kalamazoo MI

KAYDON CORPORATION MICHIGAN

EPA ID# MID006016703



EPA REGION 5

Muskegon County
Muskegon

Site Description

The Kaydon Corporation has manufactured various bearings and bearing assemblies at this 40-acre site since 1941. Wastewater and sludges from plant processes were disposed of on site in seven unlined pits and in the south branch of Ruddiman Creek. In 1968, Kaydon began separating wastes; now only cooling water is discharged into the creek. Some process wastes are removed by waste haulers. The remaining waste is placed in lined settling ponds to settle out the sludge prior to discharge to a sanitary sewer. The pond sludge periodically is removed to a federally approved facility for disposal. Approximately 5,000 people live within a mile of the site. The closest residence is 250 feet away. Although 700 people obtain drinking water from private wells within 3 miles, the majority of the homes in the area are connected to the municipal water supply, which uses Lake Michigan as its source. Several residences within 1 mile of the site have private wells, but only one residence used a well as its drinking water supply. Ruddiman Creek flows into Muskegon Lake, and eventually, into Lake Michigan. All of these bodies of water are used for recreational activities.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs), cyanide, and heavy metals such as chromium and lead. Soil and sludge contained heavy metals including chromium, copper, nickel, lead, and zinc. People who come into direct contact with or accidentally ingested the contaminated soil, sludges, or groundwater are at risk.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1986, Kaydon conducted a hydrological study to determine the extent of groundwater contamination, removed 1,500 cubic yards of contaminated soil and sludge, and disposed of them in a federally-approved facility. The excavated area was backfilled with clean sand, graded to conform to existing land contours, and seeded. In 1988, Kaydon installed two purge wells that discharge directly to the publicly owned treatment works. The wells will continue to operate until groundwater standards are reached. A performance evaluation is being conducted currently.



Entire Site: In 1993, Kaydon conducted a study of soil contamination at its property. The investigation showed the presence of elevated levels of metals, semi-volatile organic liquids (SVOCs), and VOCs. Additional studies will be performed to further define the extent of contamination, which will be the basis for selecting cleanup remedies.

Site Facts: Site activities and cleanup actions have been performed voluntarily by the Kaydon Corporation.

Environmental Progress



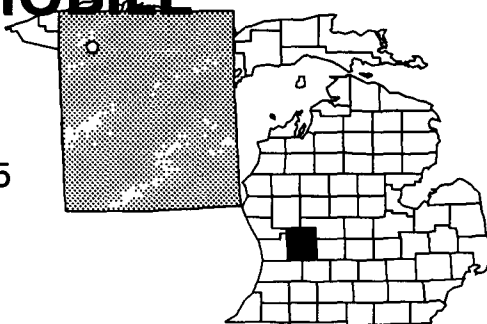
The 1986 limited removal of contaminated soil and sludge and the installation of purge wells have reduced the potential for exposure to contaminated materials at the Kaydon Corporation site. The operation of the purge wells will continue to ensure the safety of nearby residents and the environment while investigations into the nature and extent of contamination are under way.

KENT CITY MOBILE HOME PARK MICHIGAN

EPA ID# MID981089915

EPA REGION 5

Kent County
Kent City



Site Description

In 1983, a water supply well at the Kent City Mobile Home Park site was found to be contaminated with low levels of volatile organic compounds (VOCs). This well was replaced with a new well, located 500 feet uphill of the old one, that draws on a deeper aquifer. The probable source of contamination was a buried storage drum found approximately 20 feet from the wells. This drum collected floor drainage from a dry cleaning facility that formerly operated on the site. In 1984, the drum and its surrounding soil was excavated and replaced with soil. Approximately 3,000 people live within 3 miles of the site. The majority of these residents use groundwater for a drinking water source; there is no municipal water supply in the area.

Site Responsibility: This site was addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 09/18/85

Final Date: 07/21/87

Threats and Contaminants



Groundwater was contaminated with VOCs. New wells have been drilled that tap the deeper uncontaminated aquifer; therefore, exposure to pollutants through the groundwater is unlikely. Removal of the source of contamination has resulted in the natural reduction of the contaminants in groundwater.

Cleanup Approach

Response Action Status



Immediate Actions: In 1984, the source of groundwater contamination, a buried storage drum, and surrounding soil were removed. The contaminated well was removed from service and replaced with a deeper well.



Entire Site: The EPA investigated the site in 1989 and did not find any further contamination. Monitoring by the Michigan Department of Natural Resources (MDNR) has found no contamination in monitoring wells, municipal wells, or private wells in the area. In 1994, the EPA selected a "No Further Action" remedy and began taking steps to delete the site from the NPL.

Environmental Progress

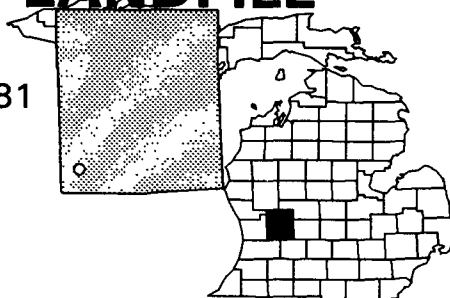


After adding this site to the NPL, the EPA performed further inspections of the Kent City Mobile Home Park site and found no contamination in any of the wells in the surrounding area. As the source of contamination was removed, the site no longer poses a threat to public health or the environment.

KENTWOOD LANDFILL

MICHIGAN

EPA ID# MID000260281



EPA REGION 5

Kent County
Kentwood

Other Names:
Kent County Landfill

Site Description

The 55-acre Kentwood Landfill site originated as the Paris Township dump in the early 1950s and lies within a 72-acre parcel of land in Kentwood. Refuse was dumped into ravines at the landfill and was burned. In 1966, the dump was licensed as a solid waste disposal facility; however, the license stipulated that the refuse be covered daily and that burning cease. The site was inspected in late 1966, and surface seeps of leachate, open burning, and disposal of liquid factory wastes were found. The license was transferred to the City of Kentwood in 1968, and this license stipulated the site be operated as a sanitary landfill or closed. In 1969, the landfill was being operated as an open dump in violation of State law. In 1971, the Kent County Department of Public Works (KCDPW) obtained a license, took over operation of the site, and designed it as an engineered landfill. On many occasions, leachate was observed seeping from the landfill into nearby Plaster Creek. In 1975, the KCDPW obtained a license to operate an additional landfill, southeast of the original landfill. The County covered both the original and the new landfill with clay and sand in 1975 and 1976 to prevent rainwater from coming into contact with the buried wastes. The entire landfill was closed in 1976. Approximately 22 residences are in the immediate area near the landfill. Some of these residences obtain their drinking water supply from the groundwater in the area surrounding the site. The City of Kentwood obtains drinking water from a municipal water supply system tapping Lake Michigan.

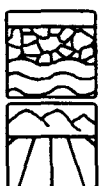
Site Responsibility: This site is being addressed through Federal, County, and local actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater, soil, and leachate are contaminated with volatile organic compounds (VOCs) and heavy metals such as arsenic and nickel. People who come into direct contact with or accidentally ingest the contaminated groundwater, soil, or leachate may suffer adverse health effects. If the leachate continues to seep from the landfill, soil, surface water, and sediments in Plaster Creek may become contaminated and pose a threat to public health and the environment.

Cleanup Approach

This site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: The City of Kentwood and Kent County, under EPA supervision, conducted an investigation to determine the type and extent of contamination at the landfill. The groundwater, soil, surface water, and sediments of Plaster Creek were sampled and tested. In early 1991, the EPA selected a remedy, which includes capping the landfill, incorporating a gas venting and leachate collection system into the cap, extracting groundwater and treating it at a local wastewater treatment facility, implementing groundwater use restrictions, and constructing a leachate extraction system. The design phase for constructing the remedy was completed in March 1994. Final cleanup activities are currently underway.

Site Facts: In 1985, the City of Kentwood and Kent County signed an Administrative Order on Consent to conduct a study of the site. The Municipalities signed a Consent Decree to conduct the design of the remedy and the cleanup activities in August 1991.

Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Kentwood Landfill site while final cleanup activities are taking place.

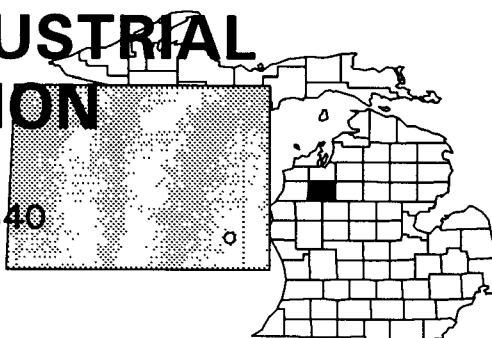
Site Repository



Kent County Library, Kentwood Branch, 4700 Kalamazoo Avenue, Southeast, Kentwood, MI 49508

KYSOR INDUSTRIAL CORPORATION MICHIGAN

EPA ID# MID043681840



EPA REGION 5

Wexford County
Cadillac

Other Names:
Kysor Cadillac

Site Description

The Kysor Industrial Corporation site covers approximately 1/10 acre in the Cadillac Industrial Park. The park consists of about 40 industrial facilities, two of which are NPL sites, Kysor and the Northernair Plating Company. Kysor Industrial manufactures temperature control systems for the automotive industry, using a process involving stamping and machining metal parts. Prior to 1979, 665 cubic yards of liquid/sludge wastes containing solvents were disposed of in unlined earthen pits on the site. Sampling in 1980 found the groundwater to be contaminated with volatile organic compounds (VOCs). In 1981, Kysor excavated and removed 700 cubic yards of contaminated soil. The excavated areas were backfilled with clean material. All residences with affected and potentially affected water supplies were connected to the municipal water supply. Additional sampling in 1983 showed that the soils still were contaminated. The second NPL site, Northernair, also has contaminated soil and groundwater. The groundwater plumes have intermingled, so that the groundwater under both sites is contaminated with elements from Northernair and Kysor. Approximately 10,800 people live within 3 miles of the site; about 5,000 live within a mile. The Cadillac area municipal well field is 2,500 feet northeast of the facility. Lake Cadillac is 3,500 feet away and the Clam River is within 5,000 feet. Both of these bodies of water are used for recreational activities, including fishing.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 09/18/85

Final Date: 10/04/89

Threats and Contaminants



Groundwater contains VOCs including trichloroethylene (TCE), chloroform, toluene, and ethyl benzene, as well as hexavalent chromium. Soil is contaminated with VOCs, heavy metals, and phenol. People may be exposed to pollutants by accidentally ingesting or coming into direct contact with contaminated groundwater or soil.

Cleanup Approach

The site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: Because the groundwater has intermingled, the cleanup addresses both the Kysor and Northernaire sites. In 1989, the EPA selected a remedy to clean the sites by constructing a groundwater extraction and treatment system. This system will consist of a number of extraction wells strategically located to intercept the contaminated groundwater. An underground piping system will connect the extraction wells and transport the extracted groundwater to the treatment facility, where it will be treated by air stripping. The contaminants will be removed from the water by forcing air through it, causing the compounds to evaporate. The groundwater also will be treated with a carbon adsorption treatment system to remove hexavalent chromium. The treated groundwater will be discharged into the Clam River. In addition, a vapor extraction system will be installed to treat contaminated soils. The contaminants will be extracted by blowing clean air on the soil, which forces the contaminants out into a gas. The gases are further treated before release into the atmosphere. A fence will be constructed around the Kysor site to prevent trespassing. Appropriate action also will be taken to ensure that current or future landowners do not use the contaminated groundwater aquifers as a source of drinking water. The parties potentially responsible for the site contamination have completed a pilot test of the selected remedies and are designing the technical specifications for the cleanup at the site under EPA monitoring. After the completion of the design phase, scheduled for early 1995, the planned cleanup activities will begin.

Environmental Progress



After adding the site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Kysor Industrial Corporation site while it awaits final cleanup.

Site Repository

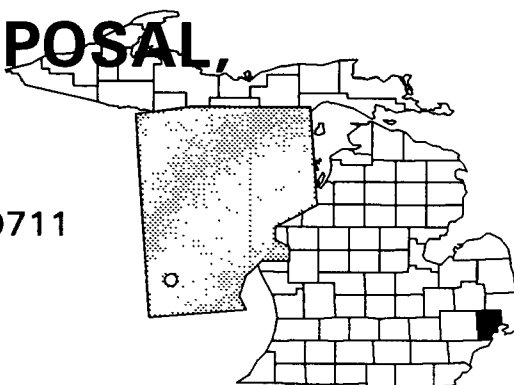


Cadillac-Westford Library, 411 South Lake Street, Cadillac, MI 49601

LIQUID DISPOSAL, INC.

MICHIGAN

EPA ID# MID067340711



EPA REGION 5

Macomb County
Shelby Township

Site Description

The Liquid Disposal, Inc. (LDI) site covers approximately 7 acres in Shelby Township between Utica and Rochester. Prior to 1964, the LDI site area was used as a sand and gravel pit. Landfilling began in 1964. LDI began commercial incinerator operations at the site in 1968. The incinerators were designed for handling volatiles and semi-volatiles, including paint thinners, sludges, contaminated oils and greases, and any other liquid industrial wastes that did not contain chromium or cyanide. However, LDI did accept wastes containing these contaminants. Wastes were stored in a lagoon, underground and aboveground tanks, and numerous types of drums before incineration. A scrubber lagoon was used for incineration ash and stormwater runoff. LDI operated for 14 years and was cited for numerous violations, including fires and improper storage. LDI ceased operations and was permanently closed in 1982 after two people were killed in an industrial accident. Currently, old incinerator parts, emptied tanks, wooden pallets, miscellaneous containers, and other debris remain on site. The lagoons' contents have been removed or stabilized, and virtually all storage tanks and containers have been removed. A crude leachate collection system along the eastern side of the site is operational, with a sump pump circulating accumulated liquids back into the incinerator pit. The incinerator pit also continues to collect water from surface drainage and subsurface seepage. The Rochester-Utica State Recreational Area is adjacent to LDI and the G & H Landfill NPL site is about a mile away. The site is surrounded by wetlands, the Clinton River, and the Shadbush Tract Nature Study Area. Approximately 54,000 people reside in the rural area within 3 miles of the site. The local drinking water for 3,500 people comes from groundwater sources. About 3,200 people live within a mile of the site, with the nearest residence situated about 1,300 feet away.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants

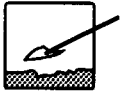


The groundwater is contaminated with volatile organic compounds (VOCs) and heavy metals. The soil contains VOCs, polycyclic aromatic hydrocarbons (PAHs), pesticides, polychlorinated biphenyls (PCBs), and heavy metals. Stored contaminants are a fire or explosion hazard. Direct contact with or accidental ingestion of contaminated groundwater, soil, or leachate could pose a health threat as well. Surrounding wetlands could be affected by site contamination.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: The EPA responded to an accidental spill of hazardous waste chemicals in 1982 by shutting off equipment and performing initial cleanup actions.

In 1982, heavy rains caused the lagoon level to rise above the liner, forcing liquid to seep through the wall and threatening the stability of the dike that had been built around it. The EPA removed the PCB-contaminated soils outside the facility and secured them in another facility, lowered the lagoon level 2 feet from the top of the liner, and removed the oily layer. The waste was stored on site. Liquid was pumped from the incinerator pit, and the clay barrier preventing dike seepage from reaching the Clinton River was repaired. The dikes were regraded and repaired, and the tanks of flammable chemicals were secured. In 1983, the EPA drained the lagoons, removed sludge, capped the lagoons, and overpacked the drums. The waste oil lagoon caught fire during the solidification process and, as a result, 500 nearby residents were evacuated. Approximately 1,800,000 gallons of liquid and 2,800 cubic yards of sludges were removed from the waste oil lagoons. The EPA removed all the ash piles and backfilled and capped the waste oil lagoon. Eleven 15-gallon packs of acids and isocyanate also were disposed of. In 1985, the EPA removed 100,000 gallons of flammable liquids. All the underground tanks were uncovered, opened, and cleaned. Approximately 200 drums were incinerated or landfilled in early 1986. Several hundred sample jars of hazardous material were removed in 1990.



Entire Site: Based on the results of the site investigation by the Michigan Department of Natural Resources (MDNR), the EPA selected the following methods for long-term cleanup at the site: on-site disposal of existing debris and equipment; on-site solidification and fixation of soil and waste; extraction and treatment of groundwater using air stripping and ion exchange, with discharge of the treated groundwater into the Clinton River; and construction of a slurry wall and impermeable cap containment system. Cleanup activities began in December 1992 and are currently in progress. Off-site excavation has been completed and on-site solidification of soils has begun. All cleanup actions are expected to be completed by 1995. Although the original remedy decision called for extraction wells to be installed just to the north and northwest of the site, this component of the remedy is currently under review by the EPA and MDNR. A recent investigation of the off-site groundwater shows drastically reduced levels or absence of many of the contaminants found in earlier investigations. Since construction of the slurry wall and impermeable cap will eliminate the possibility of any future off-site migration of contaminants, the EPA and MDNR are re-evaluating the necessity of installing off-site contaminants wells. Once the Agencies have reached a final opinion on this issue, the public will be informed and given a chance to comment.

Site Facts: In February 1982, the MDNR rejected LDI's application for a toxic waste handling permit. In April 1982, LDI was forced into involuntary bankruptcy. The company closed permanently in May 1982.

Environmental Progress



Removal of contaminated materials and repair of dikes on the LDI site, along with the fencing around the site, have reduced the potential for contact with hazardous materials while final site cleanup activities continue.

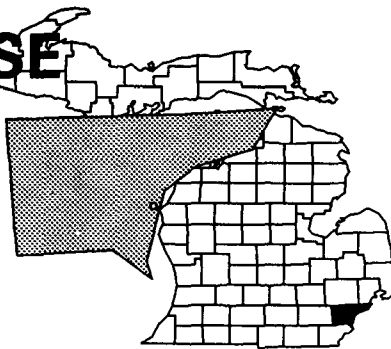
Site Repository



Shelby Township Library, 51680 Van Dyke Avenue, Utica, MI 48087

LOWER ECORSE CREEK DUMP MICHIGAN

EPA ID# MID985574227



EPA REGION 5

Wayne County
Wyandotte

Site Description

The Lower Ecorse Creek Dump site consists of the residence at 470 North Drive and three neighboring parcels of land. During the period between 1945 and 1955, and prior to the construction of the house at 470 North Drive, the low-lying swampy area of the creek was filled with material from local industries. Some of the fill material contained ferric ferrocyanide, commonly referred to as "Prussian Blue". Blue soil also was reported at two other residences on North Drive. Neighborhood children have used portions of the site as a "go-cart" track, wearing down the soil and exposing the Prussian Blue. In 1989, the EPA conducted sampling. The Agency for Toxic Substances and Disease Registry (ATSDR) reviewed the soil samples and concluded that the presence of cyanide-contaminated wastes in an unrestricted residential area presented an immediate and significant public health threat. In response, the EPA covered the contaminated areas to eliminate physical contact with Prussian Blue and related cyanide compounds.

Site Responsibility: The site is being addressed through Federal actions.

NPL LISTING HISTORY
Proposed Date: 01/18/94

Threats and Contaminants



The soil is contaminated with ferric ferrocyanide. Groundwater is potentially contaminated with ferric ferrocyanide. The ATSDR has recommended restricting digging into the contaminated subsurface soil to prevent contact with contaminated soils and the release of cyanide gas. Touching or ingesting contaminated soils is a severe health threat.

Cleanup Approach

The site is being addressed in two phases: emergency actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Emergency Actions: In late 1989, the EPA covered contaminated areas with 6 inches of clean topsoil and filled-in areas of the property excavated by the owner. In 1990, the action was completed with the construction of a vegetative cover. In 1993, in response to the ATSDR's recommendation, the EPA permanently relocated the affected residents.



North Drive: In early 1994, the EPA began an extensive investigation of the nature and extent of the contaminated North Drive area. This investigation, scheduled to be completed in 1996, will help identify alternatives for final cleanup.

Environmental Progress



Covering contaminated areas and permanently relocating residents is keeping the Lower Ecorse Creek Dump site safe while studies leading to the selection of final cleanup remedies are underway.

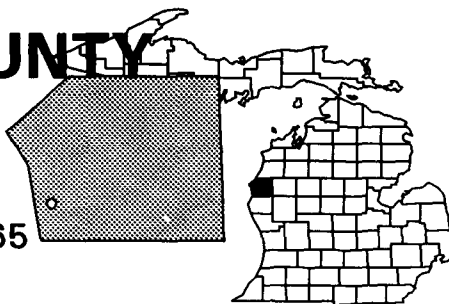
Site Repository



Not yet established.

MASON COUNTY LANDFILL MICHIGAN

EPA ID# MID980794465



EPA REGION 5

Mason County
Pere Marquette Township
3 miles south of Lundington

Site Description

The Mason County Landfill site comprises 10 acres of an 18-acre parcel of land and is located 3 miles south of the town of Lundington in Pere Marquette Township. The landfill was operated by Acme Disposal for Mason County from 1972 through 1978 and accepted general refuse, garbage, industrial refuse, liquids, sludges, and industrial wastes. Acme Disposal was ordered to install additional groundwater wells on the site in 1978. Mason County covered the landfill with 2 feet of clay in 1979. Afterward, the site and adjacent land eroded and may have polluted groundwater and nearby Iris Creek. Two years after the landfill ceased to operate, nearby residents voiced concerns over water quality in Iris Creek. As a result, a plan was drafted by the Michigan Department of Natural Resources (MDNR) and the Mason County Department of Public Works (DPW) to control drainage, vent landfill gas, and monitor groundwater quality. The landfill is a mile east of Lake Michigan. A wetland located less than 500 feet from the landfill drains into Babbins Pond, the headwaters of Iris Creek. The area surrounding the site is primarily rural, with a population of approximately 1,100 people within a 1/2-mile radius of the site who obtain drinking water from private wells. Twelve residential wells are located within 3 miles of the site.

Site Responsibility: This site is being addressed through Federal, State, and County actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Air located in the landfill gas vents was contaminated with volatile organic compounds (VOCs) including vinyl chloride and benzene. Off-site groundwater in the monitoring wells contained VOCs and heavy metals including sodium and lead. Sediments were contaminated with arsenic. Soils, including those in the clay cap, were contaminated with lead and arsenic. Heavy metals were found in Iris Creek. Trespassers on site could have been exposed to health risks through direct contact with contaminated soils and inhalation of airborne materials. People or wildlife may have come into contact with contaminants that entered the surface water and wetlands.

Cleanup Approach

Response Action Status



Immediate Actions: In 1983 and 1984, Mason County covered the landfill with clay, graded the land so that it was terraced, constructed storm drains, installed two surface units in Babbin Pond to allow air into it, and placed 15 gas vents on the top of the landfill.



Landfill: The long-term cleanup action chosen by the EPA in 1989 to address the landfill portion of the site includes: covering the landfill with soil and clay according to Federal hazardous waste management regulations; constructing a fence around the perimeter of the site; placing deed restrictions on and near the site to prohibit the use of shallow groundwater; and continuing the monitoring of groundwater to aid in the long-term cleanup action for the groundwater and to assess the effectiveness of the clay and soil cover. Construction of the clay/soil cap was completed in mid-1991.



Groundwater: The EPA conducted an investigation into the nature and extent of groundwater contamination and the most effective methods of treatment. The investigation concluded that groundwater contamination levels are below the EPA's acceptable levels and do not pose a threat to local residents. Therefore, in September 1993, a "no action" remedy was selected for the groundwater at the site. Yearly sampling will be performed at the site to ensure the protectiveness of the remedy.

Site Facts: In 1978, Acme was ordered by the State to install additional monitoring wells, analyze water samples, and survey the site. A Consent Order subsequently was issued to cover the items that remained to be completed when Acme ceased to operate at the site in 1978. In 1981 and 1982, residents filed two suits against the County and Acme. The suits were settled when Mason County agreed to purchase both properties.

Environmental Progress



Covering and grading the land, constructing storm drains, and venting Babbin Pond and the landfill have reduced the potential for exposure to contaminants at the Mason County Landfill site. All construction is complete at the site. Investigations show that groundwater contamination does not pose a threat. Yearly monitoring will be performed until the site is determined to be clean.

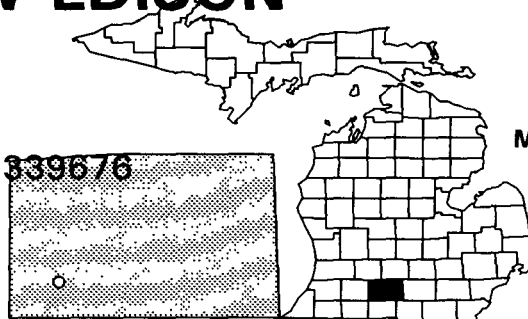
Site Repository



Ludington Public Library, 217 East Ludington Street, Ludington, MI 49431

MCGRAW EDISON CORP. MICHIGAN

EPA ID# MID005339676



EPA REGION 5

Calhoun County
Albion

Other Names:
McGraw-Edison Air Comfort Division

Site Description

The McGraw Edison Corp. site covers 24 acres in Albion. The company manufactured air conditioners, humidifiers, and similar equipment from 1958 to 1980. From 1970 to 1980, 15,000 gallons of stillbottoms (an oil waste) contaminated with trichloroethylene (TCE) were spread on the site's roads to control dust. As a result, TCE has been found in two on-site wells and in 45 nearby residential wells. The Albion municipal wells also show TCE contamination. Extensive soil contamination also was detected. The plant closed in 1980, and the site is completely restricted. McGraw Edison was sold to Cooper Industries in 1985. Approximately 11,000 people reside within 3 miles of the site. Residents in the area depend on both municipal wells and private wells for drinking water. The Kalamazoo River is located one half mile from the site, receives discharge from groundwater purge wells, and is used for recreational activities such as swimming and fishing.

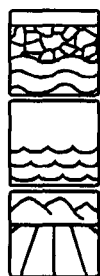
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



The groundwater, stream sediments, surface water, and soils are contaminated with TCE. People may be exposed to site-related contaminants if they breathe airborne materials or ingest or come into direct contact with polluted groundwater, surface water, soils, or stream sediments. Air quality controls have been established to eliminate the potential for air contamination.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of the entire site and the soil.

Response Action Status



Immediate Actions: Affected residences were supplied with bottled water and later were connected to the municipal water supply by McGraw Edison. The potentially responsible party removed and disposed of approximately 18,980 cubic yards of contaminated soils in an approved hazardous waste facility.



Entire Site: A deep aquifer groundwater recovery well has been operating on site since 1984. Contaminated groundwater is being treated with an air stripper. The groundwater treatment system for the shallow aquifer consists of 28 purge wells and a carbon adsorption tank. The wells have been constructed and the system is operational. Treated groundwater is being discharged, under a Federal permit, into the Kalamazoo River. Groundwater monitoring began in 1990 and will last for approximately 40 years before cleanup standards are met. More than 4 billion gallons of groundwater have been purged and treated to date.



Soil: Areas of soil containing greater than 10 parts per billion of TCE which still remain on site will be cleaned up during this long-term soil cleanup phase. The selected remedy for the long-term soil cleanup is flushing contaminants from the soil into the shallow aquifer so contaminants can be recovered using the groundwater purge system. The system, including the temporary receiving ponds, was constructed and granted a Groundwater Discharge Permit Exemption in May 1991.

Site Facts: The cleanup of this site falls under the 1984 Consent Decree signed with McGraw Edison. Since the facility's purchase by Cooper Industries, Cooper has re-evaluated and completed the site studies and has assumed responsibility for the site cleanup.

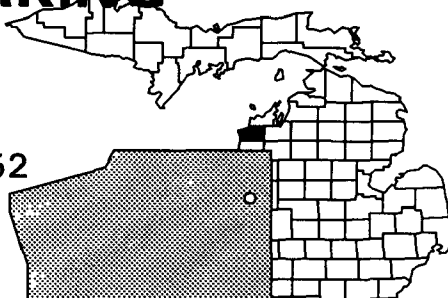
Environmental Progress



By supplying affected residences with a safe drinking water supply and removing much of the contaminated soil, the potentially responsible party has reduced the potential for direct exposure to hazardous materials at the McGraw Edison Corp while cleanup is underway.

METAL WORKING SHOP MICHIGAN

EPA ID# MID980992952



EPA REGION 5

Benzie County
Lake Ann

Site Description

The Metal Working Shop site covers approximately 2 1/2 acres on a hill between Lake View and Lake Ann. From 1974 to 1977, the owner of the property finished metals in the shop using iron phosphate. Two types of rinse waters were generated in an oxidizing phase of the operation: an acidic rinse (dilute hydrochloric acid), containing iron phosphate, and a caustic rinse (sodium hydroxide). From 1975 to 1977, effluents from these rinses were mixed to neutralize them and then dumped onto the ground. According to the owner, 400 gallons per day were disposed of for 8 to 10 days a month. In 1983, Lake Ann Manufacturing took over the site. Sampling by the State detected heavy metal salts in the rinses. Groundwater in the area occurs at shallow depths, and wells draw from the very permeable sand and gravel drift aquifer. The area residents depend on private wells for drinking water. Approximately 1,000 people reside within 3 miles of the site, and the nearest residence is 600 feet away. Many other lakes are within 3 miles of the site.

Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY

Proposed Date: 01/22/87

Final Date: 02/21/90

Deleted Date: 12/23/93

Threats and Contaminants



The groundwater and soil were believed to be contaminated with low levels of volatile organic chemicals. However, extensive sampling conducted by the EPA revealed no contamination above natural levels. Because contamination levels were very low and the site contaminants were not migrating, no threat to the public or the environment existed.

Cleanup Approach ---

Response Action Status ---



Entire Site: In 1992, the EPA completed an investigation to determine the nature and extent of contamination, including sampling of monitoring wells, residential wells, surface and subsurface soils, and lakes. The investigation results showed that the concentration of contaminants at the site does not pose a threat to people or the environment. Therefore, EPA determined that no cleanup actions are necessary and deleted the site from the NPL in December 1992.

Environmental Progress ---



The EPA determined that the site does not pose a threat to the surrounding communities or the environment; therefore, no cleanup actions were required at the Metal Working Shop site. The site was deleted from the NPL in December 1992.

Site Repository ---

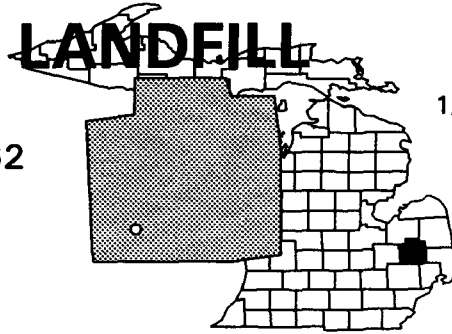


Almira Township Office, 7276 Sweet Lake Road, Lake Ann, MI 49650

METAMORA LANDFILL

MICHIGAN

EPA ID# MID980506562



EPA REGION 5
Lapeer County
1/2 mile northeast of Metamora

Site Description

The Metamora Landfill site consists of 25 acres on an 160-acre parcel of land located 1/2 mile northeast of Metamora and 35 miles southeast of Flint. The landfill operated from 1955 to 1980, first as a gravel mine and then as a privately owned, unregulated dump. The amounts of wastes disposed of at the site are unknown. However, it is likely that the previous owner disposed of waste and drums in unlined pits, which formerly were used for gravel mining or borrow areas. Fires occurred at the site in 1972 and 1979. About eight drums were unearthed in Area 1 of the site in 1981. A study conducted by the State in 1982 concluded that as many as 35,000 drums, some containing liquid waste, could be buried on site in five disposal areas. Two areas on site have been confirmed to contain approximately 28,000 drums. The area surrounding the site is rural. The estimated population of Metamora is 595. Sixteen residences are located 500 to 1,000 feet to the north of the site and are served by private wells.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible party actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



Buried waste materials and soils contain volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). On-site groundwater is contaminated with VOCs and heavy metals including arsenic. Because VOCs found in on-site groundwater move readily and because of the potential for additional leakage from buried waste materials, private wells in the shallow aquifer could be affected. These wells are located within 1,000 feet downgradient of the site; however, there is no evidence to suggest that on-site groundwater contamination has migrated off site into private drinking water wells.

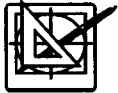
Cleanup Approach

The site is being addressed in three long-term remedial phases focusing on source control, groundwater, and subsurface soils.

Response Action Status



Source Control: The cleanup method selected by the State and the EPA in 1986 involves excavating and incinerating approximately 28,000 drums in Areas 1 and 4. These actions are expected to be completed by early 1995.



Groundwater: The State, with EPA assistance, conducted an investigation into the nature and extent of contamination in the groundwater and the landfill area. This study was completed, and a remedy was selected in 1990. The selected remedy entails groundwater extraction and treatment via chemical precipitation and air stripping, and capping of the landfill. A passive gas collection and flaring system also will be installed. Design of the remedy is underway and is expected to be completed in late 1995, at which time final cleanup activities will begin.



Subsurface Soils: A potentially responsible party is conducting a study into the nature and extent of subsurface soil contamination. During this study, the two drum burial areas on the site will be investigated and soil borings will be taken. Once the investigation is completed, expected in 1995, a final cleanup remedy will be selected.

Site Facts: The EPA sent Special Notice letters to potentially responsible parties in November 1990.

Environmental Progress



The ongoing removal and incineration of drums have reduced the potential for exposure to hazardous material at the Metamora Landfill site while further investigations to determine the most appropriate remedies for soil contamination are underway, and the design of the groundwater remedy is being conducted.

Site Repository



Lapeer County Library, Metamora Branch, 4024 Oak Street, Metamora, MI 48455 and Margerite de Angeli Library, 921 West Nepessing St., Lapeer, MI 48446

MICHIGAN DISPOSAL SERVICE (CORK STREET LANDFILL) MICHIGAN

EPA ID# MID000775957

EPA REGION 5

Kalamazoo County
Kalamazoo

Other Names:

Dispose-O-Waste and Transfer Station
Cork Street Landfill



Site Description

The Michigan Disposal Service (Cork Street Landfill) site is a 68-acre landfill located in a predominantly industrial and commercial area of Kalamazoo. From 1925 to 1961, the site was operated as a waste disposal facility. In 1961, the City of Kalamazoo purchased the property and used it for municipal waste disposal until 1968. Prior to 1968, waste was burned in an on-site incinerator, and the ash was buried in the landfill. Since most waste disposal occurred prior to the development of local and State regulations, little is known about the exact types and amounts of wastes buried in the landfill. The City continued to use the site until 1981, when Dispose-O-Waste, now Michigan Disposal Service, Inc., purchased the facility. Michigan Disposal Service, Inc. received a permit from the State of Michigan to operate the site as a Type III landfill and began operations in 1983. Type III facilities can dispose of wastes such as construction debris, demolition materials, and paper-mill waste and fly ash. The population within a 3-mile radius of the site is approximately 50,000 people. The closest residence is 1/2 mile from the site. There are approximately 30 private water wells and two municipal water wells within 2 miles of the landfill. The wells provide water for fire protection and are on stand-by status as drinking water sources. Davis Creek flows along a portion of the eastern site boundary and also flows into the Kalamazoo River, which is used for recreational purposes.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84
Final Date: 02/21/90

Threats and Contaminants



Volatile organic compounds (VOCs) including toluene, xylene, and benzene, and the heavy metals arsenic and lead were detected in on-site monitoring wells. A creek adjacent to the site showed elevated levels of lead and iron. Davis Creek and the Kalamazoo River may be threatened by site contaminants. Potential health risks exist for individuals who accidentally ingest the contaminated groundwater or surface water.

Cleanup Approach

The site is being addressed in two stages: interim actions and a long-term remedial phase directed at cleanup of the entire site.

Response Action Status



Interim Actions: The company placed a 2-foot thick clay cap on 10 acres of the site and installed monitoring wells and a leachate collection system.



Entire Site: Under the EPA's monitoring, the potentially responsible parties initiated an investigation in 1987 to determine the nature and extent of contamination at the site and recommend final cleanup activities. The investigation has included extensive sampling, an ecological survey, installation of five additional monitoring wells, and a pump test on the municipal well stations near the site to determine if local water supplies were affected by the contamination on site. The study was completed in September 1991, at which time the final cleanup remedy was selected. The remedy includes placing a solid waste cap on the entire site and pumping and treating the contaminated groundwater and discharging it to a publicly-owned treatment facility. The design of the selected remedies is expected to begin soon.

Site Facts: A Consent Decree was signed by the EPA, the City of Kalamazoo, and Michigan Disposal Service, Inc. in October 1987. The order required the City and the company to conduct an investigation of site contamination and additional studies as required by the EPA.

Environmental Progress



By covering a portion of the landfill and installing a leachate collection system, the potentially responsible party has reduced the potential for exposure to contaminants at the Michigan Disposal Service (Cork Street Landfill) site while final site cleanup activities are being planned.

Site Repository



Kalamazoo Public Library, 315 South Rose Street, Kalamazoo, MI 49007

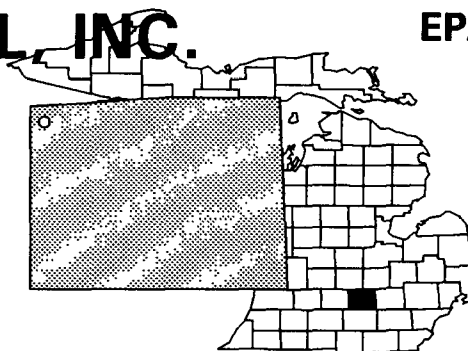
MOTOR WHEEL INC.

MICHIGAN

EPA ID# MID980702989

EPA REGION 5

Ingham County
Lansing



Site Description

The Motor Wheel, Inc. site is located on the northeastern side of Lansing. This 25-acre site was used from approximately 1938 to 1978 for the disposal of paints, solvents, and other wastes generated in the manufacture of wheels for the automotive industry. Wastes were placed directly on the ground, disposed of in containers, and buried. A clay cap was placed over a portion of the site in the 1970s. The property was sold to MSV Associates in late 1978 for the purpose of mining sand and gravel. During mining activities, the clay cap was broken at least once, exposing buried tanks and drums. The exposed material was analyzed and sent to a local licensed landfill. Paint sludges were removed from a pit, placed in two 10,000-gallon steel tanks, and reburied on the site. The nearest residences to the site are located approximately 1/4 mile to the west. The population within 1/2 mile of the site is 4,725. Located to the northwest of the site are the Granger and Paulson Street disposal areas, and to the south, the W.R. Grace property. More than a dozen schools and as many churches, numerous recreational facilities, a hospital, nine parks, many small businesses, and an armory are located within a mile of the site. Approximately 128 municipal wells serve 147,000 people in Lansing.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs), including toluene and pentachlorophenol (PCP). The site is easily accessible to the public, and the deep pits created by sand and gravel mining activities present a significant physical hazard. Ponds also exist in the bottom of the pits. Potential health risks exist for individuals who drink or come in contact with the contaminated groundwater.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1982, before the site was listed on the NPL, two 10,000-gallon tanks, an additional tank, and some accompanying soil were removed from the site. Drums also were removed and disposed of off-site in 1988. Additional drums and containers were removed in 1993.



Entire Site: Under EPA and the Michigan Department of Natural Resources (MDNR) oversight, the potentially responsible parties initiated an investigation of the site in 1987. The investigation was completed in 1991 and a remedy was selected for cleanup. Contaminated groundwater will be extracted and treated and a cap will be constructed and placed over the waste mass. Design of the remedy is underway, and expected to be completed in 1995.

Site Facts: In October 1987, under the terms of an Administrative Order on Consent, Motor Wheel, Goodyear, and W.R. Grace agreed to conduct an investigation of the site and to recommend alternative cleanup remedies. Design is being conducted under an Administrative Order on Consent signed May 1993. A Consent Decree was lodged in February 1994 for implementation of the remedy and for recovery of costs.

Environmental Progress



The removal of tanks and contaminated soil reduced the potential for exposure to hazardous waste at the Motor Wheel, Inc. site. The EPA has determined that no other immediate actions are required while cleanup activities are being planned.

Site Repository

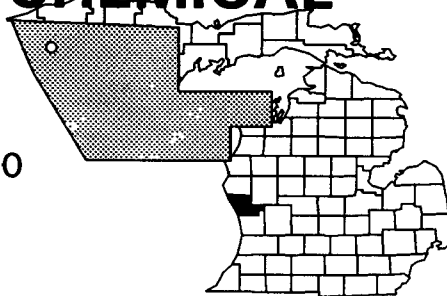


Lansing Public Library, 401 S. Capitol Avenue, Reference Section-Second Floor,
Lansing, MI 48933

MUSKEGON CHEMICAL CO.

MICHIGAN

EPA ID# MID072569510



EPA REGION 5

Muskegon County
Whitehall

Other Names:
Koch Chemical

Site Description

The Muskegon Chemical Company (MCC) site is used to produce a variety of specialty chemicals for pharmaceutical and other industries on 12 acres in Whitehall. The company operated from 1975 to 1986, when it sold the business to the Koch Chemical Company. In 1981, chemicals were identified in on-site wells. A sump pump and an outside holding tank, both badly corroded, were the potential sources. The groundwater seeped into Mill Pond Creek downgradient of the site. Over a period of 3 years, MCC installed 40 monitoring wells along the plume of contamination. Monitoring indicated that groundwater was contaminated. An 8,000-gallon pressurized tank of heptane and other chemical holding tanks are located on the northern side of the site. The surrounding area is zoned commercial, but at present is primarily residential. Approximately 6,400 people obtain drinking water from public and private wells within 3 miles of the site. A private well is 1,250 feet north of the chemical company. Surface water within 3 miles downstream of the site is used for recreational activities. Mill Pond and Mill Pond Creek are 2,500 feet from the site, and White Lake is 7,000 feet away.

Site Responsibility: This site is being addressed through Federal, State and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

Threats and Contaminants



Volatile organic compounds (VOCs) including xylenes entered the groundwater through on-site soils. A faulty sump pump circulated contaminants onto the grounds around the facility, and leaching occurred. Groundwater contaminants seep onto the banks of Mill Creek and flow directly into Mill Pond or the creek. Potential health risks exist for individuals who drink the contaminated groundwater. The municipal water systems draw from the aquifer affected by the groundwater contaminants; however, they draw from outside the present zone of contamination.

Cleanup Approach

The site is being addressed in two stages: two long-term remedial phases focusing on cleanup of the groundwater and soils and surface water.

Response Action Status



Groundwater: MCC installed a system to contain contaminated groundwater prior to and during the investigation into groundwater contamination. In 1993, the potentially responsible parties completed an investigation to further evaluate groundwater treatment needs. A cleanup remedy was selected in 1993 to address the contaminated groundwater plume in the vicinity of Mill Pond Creek. The remedy includes extracting contaminated groundwater, removing organic compounds by carbon adsorption, and discharging the treated groundwater to the Whitehall area wastewater treatment plant.



Soils and Surface Water: An investigation is underway to study soils, particularly underneath the plant, and identify sources of contamination stemming from the plant. The surface water is being evaluated to ensure that bioaccumulation of contaminants is not occurring. A remedy is expected to be selected in 1995.

Environmental Progress



The pumping and treatment of contaminated groundwater is reducing the potential for exposure to contaminated water at the Muskegon Chemical Co. site while groundwater remedies are being planned and investigations to determine final cleanup alternatives for surface water and soils are taking place.

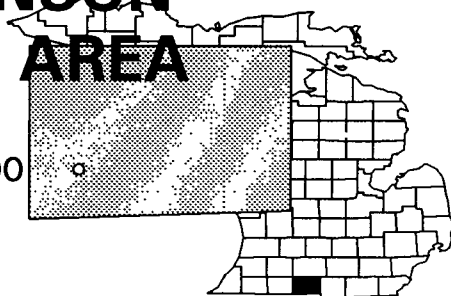
Site Repository



Whitehall City Library, 414 East Spring Street, Whitehall, MI 49461

NORTH BRONSON INDUSTRIAL AREA MICHIGAN

EPA ID# MID005480900



EPA REGION 5

Branch County
North Bronson

Other Names:
Bronson Plating Mfg Co.
Bronson WWTP
Bronson Residents Well

Site Description

The North Bronson Industrial Area (NBIA) site in Bronson consists of two lagoon areas and a county drain which runs adjacent to the lagoons. Several industries in the North Bronson area discharged plating and other industrial wastes to seepage lagoons between 1939 and 1949. An industrial sewer system was used to transport plating wastes to both sets of lagoons, which were owned and maintained by the City of Bronson. In 1949, the lagoons became overloaded, and leaks of plating wastes were reported. New lagoons were constructed in 1949. In 1970, Bronson Plating purchased the new lagoons from the City of Bronson and discharged wastes into these lagoons until 1981. The seepage lagoons are no longer used for waste disposal; however, they still contain an estimated 3,000 to 5,000 cubic yards of dewatered metal hydroxide sludges. The majority of the City of Bronson is within a 1-mile radius of the old lagoons at the NBIA site. The area surrounding the site is mixed industrial and residential, and the area north of the site is primarily rural. The population of the City of Bronson is approximately 2,270, and the majority of the residents in the area of the site are connected to the municipal water supply system. An estimated 3,000 people use wells within 3 miles of the site as a source of drinking water. The primary supply wells are located approximately 5,000 feet east of the site and are screened in the upper aquifer.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



Groundwater monitoring wells in the area have shown detectable levels of trichloroethylene (TCE), dichloroethylene, and vinyl chloride as well as elevated levels of heavy metals and cyanide. Polychlorinated biphenyls (PCBs) and metals such as cadmium have been found in sediment samples downstream of the old lagoons. Lagoon sludge contains heavy metals including cadmium, chromium, and lead. Because municipal wells are located upgradient of the site, there is only a remote chance of site contaminants reaching these wells. Accidental ingestion of or direct contact with contaminated groundwater, sediment, and sludge could pose a health threat to people in the area.

Cleanup Approach

The site is being addressed in two phases: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: Private wells found to be contaminated have been taken out of service and alternate water supplies have been provided to the affected residences.



Entire Site: The EPA initiated an investigation in mid-1987 to determine the nature and extent of contamination at the site caused by the lagoons and to determine if other possible sources of contamination existed. The field work completed to date includes extensive sampling of the soils, sediments, and liquids in and near the lagoons, as well as limited sampling in the county drain, and sampling of groundwater in the area of the site. The investigation was completed in 1993. Alternative cleanup options to address the lagoons and the drain are being evaluated at this time.

Environmental Progress



Taking contaminated private wells out of service and providing alternate water supplies have reduced the potential for exposure to site contamination while studies leading to the selection of final cleanup remedies are being conducted at the North Bronson Industrial Area site.

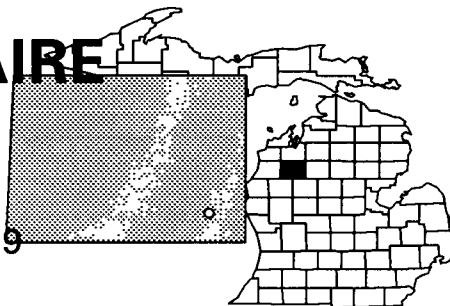
Site Repository



Branch County Library, Bronson Branch Library, 207 North Matteson Street, Bronson, MI 49028

NORTHERNAIRE PLATING MICHIGAN

EPA ID# MID020883609



EPA REGION 5

Wexford County
Cadillac

Site Description

Northern Plating began operations on this 13-acre site in 1971, providing chromium and nickel-plating finishes to automobile and other metal parts. Problems first surfaced in 1978, when citizens became concerned over poor drinking water quality from two private wells near the site. The State Health Department found elevated levels of chromium in the water. The wells were taken out of service, and the City of Cadillac extended water service to the affected residents. The State requested that Northern Plating investigate the well contamination and resolve issues concerning possible sewer line leaks and waste containment. In 1978, the City revoked the company's wastewater discharge permit and plugged the connection to the City's sewer system. Subsequently, Northern Plating stored its wastewater in tanks, which were removed by truck for off-site disposal. The company ceased operations in 1981, leaving waste materials and drummed chemicals outside the building. In 1982, the unsecured waste materials burned two children playing at the unfenced site. The State immediately moved the drums into the building for safety. The area surrounding the site is primarily industrial, with a few private residences located in the immediate area. The Kysor Industrial Corp. NPL site is also located nearby. A mobile home park is approximately 500 feet from the site. Many private wells surround the facility. A municipal well field is 1/4 mile from the site. For additional information, please see the separate listing for Kysor Industrial Corp.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with heavy metals such as cadmium and chromium. Prior to cleanup, soil contained heavy metals, and sediments were contaminated with cadmium, chromium, and volatile organic compounds (VOCs). People who trespassed on the site and accidentally ingested or came into direct contact with contaminated soil or sediment may have been exposed to pollutants. Drinking or coming in direct contact with contaminated groundwater may pose a health threat.

Cleanup Approach

This site is being addressed in three stages: emergency actions and two long-term remedial phases focusing on source control and groundwater cleanup.

Response Action Status

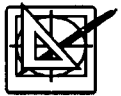


Emergency Actions: In 1983, 3,450 gallons of acid, 5,402 gallons of cyanide-bearing wastes, 160 drums of cyanide wastes, and 5,000 gallons of waste hypochlorite used to treat cyanide contamination were removed from the site.

Approximately 120 feet of the plating facility's sewer line were also removed. Equipment was removed from the building, and the building was steam cleaned.



Source Control: In 1985, the EPA selected a remedy to clean up the source of the contamination, which featured: excavating soils and sewer line sediments and disposing of them at a federally-approved facility; cleaning the dust and residue off the floor of the facility; breaking up an area of concrete floor and the drywall in the building, sampling the soil underneath, and excavating and disposing of it off site as necessary; and backfilling all excavated areas with clean soil. The State finished all the cleanup actions in 1989, with the exception of the disposal of the concrete floor and pad, which was completed in 1991.



Groundwater: Because the groundwater beneath this site has intermingled with groundwater from another NPL site, the Kysor Industrial Corp., the groundwater cleanup will address both the Kysor and Northernnaire sites together. In 1989, the EPA selected a remedy to cleanup the sites by constructing a groundwater extraction and treatment system. This system will consist of a number of extraction wells strategically located to intercept contaminated groundwater. An underground piping system will interconnect the extraction wells and transport the extracted groundwater to the treatment facility, where it will be treated by air stripping. The groundwater also will be treated by a carbon adsorption treatment system to remove hexavalent chromium. The treated groundwater will be discharged into the Clam River. Appropriate action also will be taken to ensure that current or future landowners do not use the contaminated groundwater aquifers as a source of drinking water. Kysor is designing the technical specifications for the groundwater cleanup. The design phase, which is scheduled to be completed in 1995, will signal the start of cleanup activities.

Environmental Progress



The removal of hazardous wastes from the site has reduced the potential for exposure to contaminated wastes and drums at the Northernnaire Plating site while further cleanup actions are being designed.

Site Repository



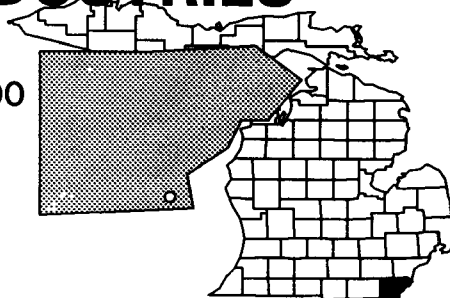
Cadillac-Westford Library, 411 South Lake Street, Cadillac, MI 49601

NOVACO INDUSTRIES

MICHIGAN

EPA ID# MID084566900

EPA REGION 5
Monroe County
Temperance



Site Description

The 2½-acre Novaco Industries site was an active tool and die manufacturing and repair facility that used chromic acid to plate auto part molds. In 1979, a tank at the site leaked an unknown quantity of acid into the ground. Soon thereafter, chromium was discovered in the site's well and in the well used by the Veterans of Foreign Wars (VFW) Post 9656. A year later, chromium was detected in a residential well. Novaco began cleanup actions a month after the spill was detected. The site consists of Novaco Industries, the VFW post, and the Moyer residential property. Approximately 85 residences and businesses lie within ½ mile of the site.

Site Responsibility: This site is being addressed through Federal actions.

NPL LISTING HISTORY Proposed Date: 12/30/82 Final Date: 09/08/83

Threats and Contaminants



Groundwater samples from the shallow aquifer contain low levels of chromium. Chromium contamination has not been found in monitoring wells or residential wells located in the deep aquifer. Ingestion of contaminated groundwater is the only potential health risk at the site, although this is considered unlikely. Testing has revealed that the level of contamination is below Federal drinking water standards. The two domestic wells that are located in the shallow aquifer have been abandoned.

Cleanup Approach

Response Action Status



Entire Site: Following an investigation of groundwater contamination at the site between 1983 and 1986, the EPA selected the following remedy: extracting and treating approximately 36 million gallons of groundwater; discharging treated water into Indian Creek; monitoring groundwater for 30 years; and plugging and abandoning 15 groundwater monitoring wells. The EPA began design of the remedy in 1987. In 1988, the Army Corps of Engineers conducted a pump test and collected groundwater samples as part of the remedy design phase. Analysis of these samples indicated that the chromium concentrations had fallen below the Federal drinking water standard. The EPA canceled its construction work on the original remedy but continues to monitor the groundwater. In 1989, the chromium levels were still below drinking water standards, and additional soil testing indicated levels below public health standards. Therefore, no further actions are required except for continued site monitoring to ensure the long-term safety of the site.

Environmental Progress



The groundwater and soil samples taken at the Novaco Industries site indicate that the low level of contamination that currently exists at the site does not pose a threat to nearby residents and the environment. The EPA will continue, however, to monitor the groundwater to ensure safety standards are maintained.

Site Repository

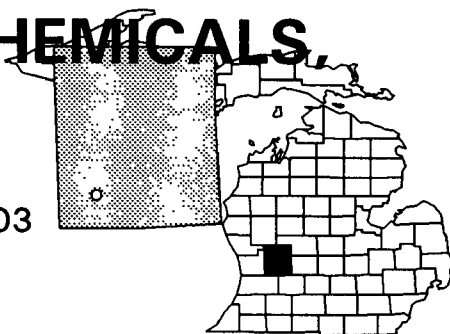


Monroe County Public Library, Bedford Branch, 8575 Jackman Road, Temperance, MI 48182

ORGANIC CHEMICALS, INC.

MICHIGAN

EPA ID# MID990858003



EPA REGION 5

Kent County
Grandville

Site Description

Beginning in the early 1930s, the 20-acre Organic Chemicals, Inc. (OCI) site was used to refine, transport, and store petroleum. A succession of petroleum-related industries operated on the property until it was purchased in 1968 by the Spartan Chemical Company. Spartan bought the property to be used by its subsidiary, Organic Chemical Company (now Organic Chemicals, Inc.), and in 1979, OCI became the owner of the property. Operations at the site included recycling approximately 100,000 gallons of used solvents each month and manufacturing small amounts of chemicals used in pharmaceuticals and industry. In May 1991, OCI stopped operation. Process waste and cooling water from OCI's operations were discharged to a seepage pond from approximately 1968 to 1980. In 1979, OCI reported to the Michigan Department of Natural Resources (MDNR) that there had been chemical spills on the property. OCI closed the seepage pond in 1980 and installed a wastewater treatment facility, which discharges treated water into the municipal sewer system. The site is in a wetlands area, and there are lakes and ponds downgradient from the site. Approximately 2,850 people live within a mile of the site, and 9,000 people live within 3 miles of the site. All residences are connected to the Grandville municipal water system and use municipal water for drinking and cooking.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



On-site groundwater contains volatile organic compounds (VOCs). Soil under a cooling pond showed slight contamination. People could be exposed to hazardous substances from the site by accidentally ingesting, or coming in direct contact with, contaminated groundwater or soil. The site is located in a wetland area, and lakes and ponds down-gradient from the site may become contaminated.

Cleanup Approach

This site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of the shallow groundwater and other areas.

Response Action Status



Immediate Actions: In 1981, OCI removed sludges that had accumulated at a former cooling water pond and filled the pond with clean material. In 1987, OCI excavated and removed approximately 150 drums from the site. OCI classified all wastes from the drums as paint sludges and disposed of them as hazardous waste.



Shallow Groundwater: The EPA conducted an extensive study of the groundwater contamination in the shallow aquifer using the information that OCI collected during its initial site investigation. The EPA drilled and installed 23 monitoring wells on- and off-site as part of the study. The study was completed in 1991, and the final remedy selected includes carbon adsorption of the contaminated shallow groundwater. The potentially responsible parties have completed the technical design for the carbon adsorption system. Construction of the system is scheduled to be completed in mid-1995.



Other Areas: The EPA is conducting an additional investigation addressing soil contamination, contamination in the lower groundwater system, and oil-related contamination. Test pits dug on site revealed extensive oil contamination, probably due to the refinery operation and bulk storage terminal. This phase of the investigation is scheduled for completion in the fall of 1995.

Site Facts: In 1986, the MDNR investigated a complaint that OCI personnel were illegally disposing hazardous wastes at the facility. As a result of this investigation, the EPA cited the company for violations regarding the handling and disposal of hazardous wastes. In 1987, OCI voluntarily conducted an investigation of the site in cooperation with the MDNR.

Environmental Progress



The removal of sludges and drums has reduced the potential for exposure to hazardous materials at the Organic Chemical, Inc. site while additional studies and cleanup activities are taking place.

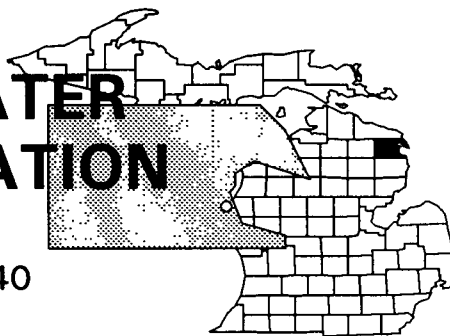
Site Repository



Grandville Public Library, 3141 Wilson Avenue, Grandville, MI 49418

OSSINEKE GROUNDWATER CONTAMINATION MICHIGAN

EPA ID# MID980794440



EPA REGION 5

Alpena County
Ossineke

Site Description

The 11-acre Ossineke Groundwater Contamination site resulted from a series of unrelated spills and incidents that contaminated the groundwater of local residents within the LaBell subdivision. These incidents included leaking underground storage tanks, accidental spills of fuel on the ground, and suspected releases of fuel and other organic compounds into the ground. A second potential source was a laundry/dry cleaning facility and its wash-water pond. Contamination was first detected in 1977 when the Alpena District Health Department (ADHD) began receiving complaints of odors in the drinking water of residents near the site. The ADHD and the Michigan Department of Public Health (MDPH) discovered that five residential wells in the area were contaminated with petroleum and chlorinated hydrocarbons. These contaminated wells all drew water from the shallow aquifer below the site. Between 1979 and 1984, the MDPH and local residents replaced 14 wells that were contaminated and replaced them with ones that drew groundwater from a deeper aquifer under the site. In 1982, additional contamination problems surfaced when gasoline odors in the basements of two local businesses were reported. The Michigan Department of Natural Resources (MDNR) studied the site in 1984 to determine the potential source of contamination. Groundwater monitoring wells and soil gas surveys detected various petroleum products and chlorinated hydrocarbons in the shallow aquifer under the site. The study pinpointed three areas where the sources of groundwater contamination appear to be located: the Barn (a gas and convenience store), the Marathon Service Station, and an area southwest of the intersection of Alphonse and LaRose streets. A 5-acre wetland is located 1/2 mile from the site, while Devils River is 3/4 mile from the site. Approximately 1,140 people live within a 3-mile radius of the Marathon Gas Station.

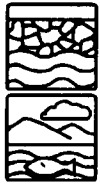
Site Responsibility: This site is being addressed through Federal, State, and local actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater under the site contains volatile organic compounds (VOCs) that are petroleum related. Currently, no residents are obtaining drinking water from contaminated groundwater. However, people could be exposed to hazardous chemicals through accidental ingestion of or direct contact with groundwater. Wetlands located 1/2 mile from the site also may be threatened.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: Fourteen wells that showed traces of contamination were replaced by the State and local residents from 1979 to 1984.



Entire Site: The EPA began field activities for a study of contamination at the site in 1989. The EPA took samples of the groundwater, surface water, sediments, air, and soil gases to clearly define the sources of contamination and the extent of the problem. The investigation, completed in early 1991, determined that the source of contamination was from leaking underground storage tanks. Based on these findings, it has been proposed that the cleanup of this site be turned over to the EPA's Underground Storage Tank (UST) program.

Environmental Progress



Replacement of contaminated wells has reduced the potential for exposure of nearby residents to site-related contaminants from the Ossineke Groundwater Contamination site while cleanup activities are being planned, possibly under the EPA's UST program.

Site Repository



NBD Alpena Bank, 11686 US Highway 23, South, Ossineke, MI 49766

OTT/STORY/CORDOVA CHEMICAL CO. MICHIGAN

EPA ID# MID060174240



EPA REGION 5

Muskegon County
Dalton Township

Other Names:
Ott Story & Corn Products
Chemical Company
Cordova Chemical Company
of Michigan

Site Description

The 20-acre Ott/Story/Cordova Chemical Co. site is a former chemical plant surrounded by wooded land. Since the 1950s, the Ott, Story, and Cordova chemical companies owned and operated three separate chemical plants on the same property. The chemical plants used various synthetic and organic chemicals to manufacture drugs, veterinary medicines, agricultural chemicals, and other similar materials. Wastes from the chemical manufacturing processes were placed in unlined lagoons and stored in drums on the property. Ott Chemical began producing chemicals at the site in 1957. The company's improper storage and handling of wastes resulted in contaminated groundwater and soils. Ott Chemical, under a license from the Michigan Water Resources Commission, also discharged purged water to Little Bear Creek, but discontinued the practice in 1967 when area residents noticed odors and adverse effects on aquatic life. Story Chemical took over the site in 1972, and by the time it went bankrupt in 1976, thousands of drums filled with chemical wastes were stockpiled on site. A plume of contaminants traveled at least 1 mile to an unnamed tributary of Little Bear Creek. The plume contaminated the tributary, the creek, and several private wells in the area. Cordova Chemical bought the property in 1977 and continued to produce a limited number of petro-chemical products, but ceased all chemical manufacturing operations in 1985. Approximately 3,500 people live within a 3-mile radius of the site and use groundwater as their source of potable water. A tributary of adjacent Little Bear Creek drains into Bear Creek, which flows into Muskegon Lake.

Site Responsibility: This site is being addressed through
Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater and soil on and near the site contain various volatile organic compounds (VOCs). Surface water and sediments are contaminated with VOCs as well as semivolatile compounds and pesticides. People could be exposed to site-related contaminants through ingestion of or direct contact with contaminated groundwater, soil, sediments, or surface water.

Cleanup Approach

This site is being addressed in four stages: immediate actions and three long-term remedial phases focusing on cleanup of the groundwater, aquifer restoration, and soil cleanup.

Response Action Status



Immediate Actions: The Michigan Department of Natural Resources (MDNR) cleaned up the surface of the site in 1978, removing 2,000 containers, 8,000 cubic yards of sludge, and contaminated soils from waste ponds on the property. Further investigations in 1978 found tanks of highly toxic phosgene gas, which the State neutralized and disposed of via an agreement with the new site owner. VOCs also were found in residential wells near the site. A permanent water supply was installed. All aboveground drums were removed from the site and a municipal water line was extended to residences with wells that were contaminated. Unused buildings, including the pilot plant, an incinerator, and four production buildings on the site were dismantled and disposed of at an off-site location.



Groundwater: The EPA completed a study of the site and concluded that contamination of surface water and sediments near Little Bear Creek and its tributary resulted from groundwater seeping into these surface water bodies. The EPA selected the following remedies for cleanup of the groundwater: installing groundwater extraction wells near a surface water body and the unnamed tributary; constructing a groundwater treatment plant on site to treat the groundwater pumped from the well; treating the groundwater; and discharging the treated groundwater into the North Branch of the Muskegon River. Design of the remedies was completed in 1993. Construction of the cleanup remedies is scheduled to be completed by late 1995.



Aquifer Restoration: Based on the results of an investigation completed in 1990, the EPA selected a remedy for aquifer restoration that includes installation and operation of extraction wells, a purge and treatment system at points throughout the aquifer, and a groundwater monitoring system. Groundwater will be treated in an attempt to attain Federal-State discharge standards. Data on the extent of groundwater contamination from extraction and monitoring wells will be used to ensure that the entire contaminated groundwater plume is treated. Design of the remedies was completed in 1993, with construction scheduled to be completed by early 1996.



Soil: Based on the results of an investigation completed in 1993, the EPA selected a remedy for soil/sediment remediation that includes excavation of approximately 7 cubic yards of contaminated soil/sediments, and treatment on-site by means of low temperature thermal desorption. The EPA is expecting to complete design of the remedy in 1995.

Site Facts: In 1968, the State ordered Ott Chemical to stop all direct discharges of process wastewaters into the groundwater and to treat its wastewater before discharge into the Muskegon River. In 1977, the MDNR ordered Story Chemical to clean up the site, control pollution to the groundwater, and replace water supplies for 50 households. Cordova Chemical entered into a Consent Order with the State after it purchased the property in 1977. In an August 1991 Federal District Court decision, certain parties potentially responsible were found liable for cleanup actions at the site.

Environmental Progress



By removing drums and other contaminated materials and providing an alternate water supply, the State has reduced exposure to contamination at the Ott/Story/Cordova Chemical Co. site while final cleanup activities are underway.

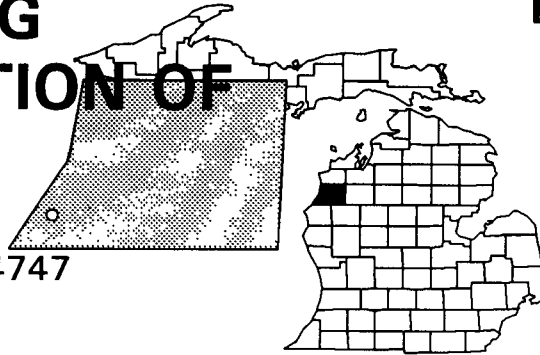
Site Repository



Walter Memorial Library, 1522 Ruddiman Avenue, North Muskegon, MI 49445

PACKAGING CORPORATION OF AMERICA MICHIGAN

EPA ID# MID980794747



EPA REGION 5

Manistee County
Filer City

Site Description

The 50-acre Packaging Corporation of America (PCA) site was a waste disposal area that contained eight lagoons. PCA and its prior owner, American Box Board Company (ABBCo), operated a pulping mill to produce materials for corrugated boxes. ABBCo first began this pulping process in 1949 and directly discharged spent cooking liquor into the Manistee Lake. This dumping severely reduced the level of oxygen in the lake and killed fish before the discharge was stopped in 1951. ABBCo then began discharging the spent cooking liquor into a series of unlined seepage lagoons located 1/2 mile east of side of Manistee Lake. Wastes from the lagoons percolated into the underlying shallow aquifer, discoloring and contaminating the groundwater. In 1959, ABBCo merged with Central Fibre Products Company & Ohio Box Board Company to form a new corporation, PCA. Between 1951 and 1976, approximately 7 billion gallons of wastewaters were discharged to the seepage lagoons. In 1972, PCA began operating a secondary wastewater treatment plant to treat wastes before discharging them into Lake Michigan. By 1974, PCA completely phased out discharging waste products into the lagoons. Of the eight lagoons that remain at the site, PCA used one as a landfill for solid waste. Approximately 10,200 people live within a 3-mile radius of the lagoons. A Martin-Marietta plant, located to the west of the site over the plume of contaminated water, formerly used groundwater for drinking and industrial purposes. The contaminant plume discharges into Manistee Lake. The Manistee River connects the lake with Lake Michigan, 3 miles from the plume.

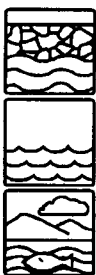
Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater contains phenols and heavy metals including chromium and lead. People in the area of the site could be exposed to hazardous contaminants through the groundwater. Manistee Lake is receiving and will continue to receive most of the contaminant plume from the PCA site. The lake supports a fishery. There is evidence that the dewatered lagoons and their surrounding areas are used for hunting and by recreational vehicles.

Cleanup Approach

EPA has determined that conditions at the PCA site pose no current or potential unacceptable risk to human health or the environment. Therefore, long-term cleanup actions will not be undertaken by EPA at this site.

Response Action Status



Entire Site: Based on an investigation completed in 1993, the EPA determined that conditions at the PCA site pose no current or potential unacceptable risk to human health or the environment. While the site does appear to exhibit elevated levels of heavy metals and some organic compounds, calculations of potential future risk indicate that the contamination will not adversely affect human health or the environment. Therefore, a remedy of "no action" was selected. The EPA also issued a public health moratorium prohibiting future well drilling into the contaminated groundwater. Should this control fail, the groundwater itself is dark brown in color and has a strong odor and taste, and would preclude its use for human consumption. Approximately 95 percent of the contaminated plume has already vented into Manistee Lake. Studies indicate that the plume is actually shrinking and private wells in East Lake and Stronach are not contaminated or threatened. The contaminants are not expected to pose a long-term concern for the lake. The EPA will however, continue to monitor Manistee Lake and the contaminants in the groundwater until the contaminated plume has fully discharged into the lake.

Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no further actions were required at the Packaging Corporation of America site. Most of the contaminated plume has discharged into Mantisee Lake. The EPA will continue to monitor the Lake until the plume has fully discharged.

Site Repository

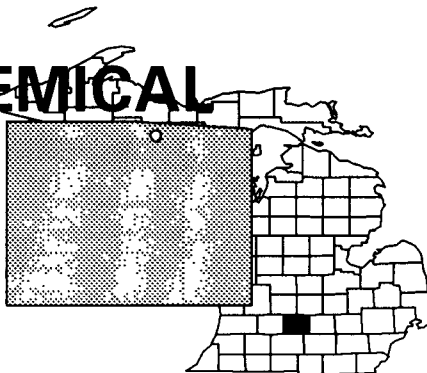


Manistee County Library, 95 Maple Street, Manistee, MI 49660

Stronach Township Hall, 2471 Main Street, Stronach, MI 49660

PARSONS CHEMICAL WORKS, INC. MICHIGAN

EPA ID# MID980476907



EPA REGION 5

Eaton County

Grand Ledge

Other Names:

Parsons/ETM Enterprise

Site Description

The Parsons Chemical Works, Inc. site covers 6½ acres of land in Oneida Township, near Grand Ledge. Parsons Chemical Works engaged in mixing, manufacturing, and packaging agricultural chemicals from 1945 until 1979, when the plant was closed. In the mid-1950s, Parsons installed a septic tank and tile field system to handle its sewage and wastewaters. A floor drain discharged wastewater from the building to the soils outside. The tank/tile system was connected to a storm drain on site, which discharged to an unnamed stream that merges with the Grand River. Materials handled during Parsons' operation included pesticides, herbicides, solvents, and mercury-based compounds. Concerns arose in 1979 and 1980, when the Michigan Department of Natural Resources (MDNR) collected sediment samples from a creek on site and the Grand Ledge ditch, located on the northern boundary of the site. The MDNR analyzed the water from these samples and found lead, mercury, arsenic, and pesticides including chlordane, dioxin and DDT. ETM Enterprises, a manufacturer of fiberglass, purchased the property in 1979 and carried out a study to determine the source of contamination at the site. The septic tank and leach field, which lead from the site to a catch basin in the county drain system, were identified as the source of contamination. In 1983, ETM excavated the area and disposed of the septic tank and the soil in the leach field. As part of the National Dioxin Study, the EPA targeted the Parsons site for dioxin screening in 1984. Samples collected in this study revealed the presence of various dioxins in sediments of the Grand Ledge ditch and in the sediments that were discharged to the drainage tile on the site. In 1985, the MDNR and the Michigan Department of Health fenced off the areas that were contaminated. ETM continues to operate the facility, but the fenced and unused areas of the site have extensively eroded. Contaminants in this area have continued to migrate from the site to the unnamed creek and Grand River. About 11,000 people obtain drinking water from three Grand Ledge municipal wells or private wells within 3 miles of the site. Groundwater near the site is shallow, and geologic conditions there make it easy for contaminants to move into the groundwater. People in the area use the river for recreational activities.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 03/31/89

Threats and Contaminants



Sediments and soils contain dioxin, heavy metals including lead, mercury, and arsenic, and pesticides including DDT, dieldrin and chlordane. The continued migration of contaminants presents a threat to public health and the environment. In 1983, studies conducted by the MDNR and the EPA attributed low levels of dioxin and chlordane in fish collected from the creek and Grand River to the site. Also, the possibility exists that the food chain in the Grand River is contaminated, because of contaminants found in the fish.

Cleanup Approach

The site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: In response to the discovery of dioxin contamination in 1985, the MDNR and the Michigan Department of Health fenced the contaminated areas. In 1990, contaminated soils were removed. Treatment and removal of these and additional soils was completed in 1994; however, a second removal action is currently underway to treat additional contaminated soil.



Entire Site: In 1992, the EPA began a detailed study of the nature and extent of contamination at the site and examined alternative methods for cleanup. The EPA is performing treatability studies to determine the effectiveness of in-situ vitrification. In-situ vitrification has been performed on the first 3,000 cubic yards of contaminated soil as a treatability study. Currently, sampling of adjacent soils is taking place to determine the extent of soil contamination.

Environmental Progress



The removal of contaminated soil and fencing of contaminated areas has reduced the threat to human health and the environment while investigations are taking place.

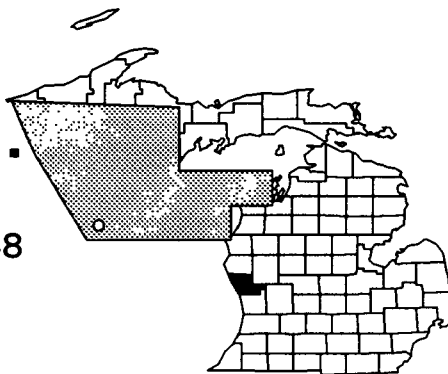
Site Repository



Grand Ledge Public Library, 131 East Jefferson Street, Grand Ledge, MI 48837

PEERLESS PLATING CO. MICHIGAN

EPA ID# MID006031348



EPA REGION 5

Muskegon County
Muskegon Township

Site Description

The Peerless Plating Co. site covers 1 acre of an abandoned electroplating facility located in Muskegon. Electroplating operations were carried out at the plant from 1937 to 1983. Toxic, corrosive, reactive, and flammable chemicals were used in the electroplating process. The plant discharged its wastewaters into three unlined seepage lagoons at the back of the facility. The wastewaters contained heavy metals and were highly acidic or basic. When the plant closed in 1983, it was abandoned, and plating solutions, raw materials, and drummed waste remained throughout the facility. In 1983, the Michigan Department of Natural Resources (MDNR) discovered that drains inside one of the buildings did not connect with the site's sanitary sewer or wastewater treatment system; instead, the wastes drained directly onto the ground. The State also discovered drums on site. In 1983, the Michigan Department of Public Health detected hydrocyanic acid gas in the facility's atmosphere. The owner's failure to take immediate action to remove the gas prompted the State to contact the EPA to assist in reducing the threat to public health caused by the gas. The surrounding area is mixed residential, commercial, and light industrial development. Approximately 3,350 people live within a 3-mile radius of the site. Seven schools, a hospital, and a correctional facility are located within 1 mile. The nearest residence is within 600 feet of the site, and a mobile home park is located 1/2 mile to the southwest. Approximately 1,500 people obtain drinking water from private wells within a 3-mile radius. The city uses the shallow aquifer as the only groundwater alternative to the municipal water supply that draws from Lake Michigan. By 1988, all private wells within a 1/2-mile radius were abandoned and replaced by the municipal water main. Little Black Creek is to the southeast and empties into Mona Lake, which is 2 miles downstream from the site. The EPA has found site-related contaminants in Little Black Creek. However, other contaminant sources exist upstream and have appeared to contribute to this contamination of Little Black Creek.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 08/30/90

Threats and Contaminants



The shallow groundwater and soil on site contain heavy metals including cadmium and chromium, volatile organic compounds (VOCs) including trichloroethylene (TCE), benzene, and xylene, and cyanide. Sediments in streams and surface waters both on and off the site are contaminated with cadmium, arsenic and lead. People could be exposed to hazardous chemicals from the site through direct contact with, or accidental ingestion of, contaminated groundwater, soil, streams and surface waters.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase directed at cleanup of the entire site.

Response Action Status



Immediate Actions: Between September and October 1983, the EPA removed the following: 37,000 gallons of sulfuric, nitric, and chromic acids; cyanide plating solution; chromium plating solution; hydrochloric acid; and trichloroethane. The EPA also took the following actions at the site: the lagoons were drained; soil was removed from the lagoon areas; the interior of the building was cleaned; vats, lines, and tanks were decontaminated; sewer lines were sealed; cyanide and nitric acid were neutralized on site; and hazardous materials were removed to a federally-regulated facility. In 1991, the EPA removed approximately 2,500 gallons of liquids containing heavy metals and cyanide from an on-site tank. In addition, the potentially responsible parties eliminated immediate sources of contamination, encapsulated asbestos insulation from an oven, and fenced the site.



Entire Site: In 1989, the EPA began a study of the nature and extent of contamination at the site, focusing on the groundwater, soil, and the effect of site-related contaminants on surface waters. In 1992, the study was completed and a remedy was selected. It called for the treatment of contaminated soils through in-situ vapor extraction of the organic compounds and stabilization of the inorganic compounds. The treated soils will be disposed of off-site in a licensed hazardous waste facility. The contaminated groundwater will be treated by air stripping the volatile organic compounds and precipitation of the inorganic compounds. This remedy is currently being designed and is expected to be constructed in early 1995.

Site Facts: In June 1983, State and local authorities took regulatory action against the owner of the facility, which resulted in the closing of the facility.

Environmental Progress



The draining of the lagoon and the removal of hazardous liquids and soils have reduced the potential for direct exposure to contaminants on the Peerless Plating Co. site. Soil and groundwater cleanup remedies have been selected and are currently being designed.

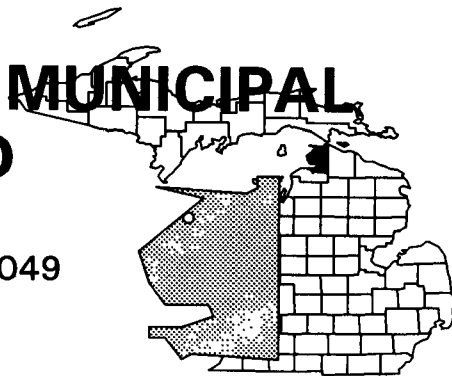
Site Repository



Norton Shores Branch Library, 705 Seminole Road, Muskegon, MI 49442

PETOSKEY MUNICIPAL WELL FIELD MICHIGAN

EPA ID# MID006013049



EPA REGION 5

Emmet County
Petoskey

Other Names:
Petoskey Manufacturing Co., Inc.

Site Description

The Petoskey Municipal Well Field provides drinking water for the residents of Petoskey, Michigan. The Ingalls Shore Municipal Well, one of only two wells serving the municipal water system, provides 60 to 70 percent of the City's water and is located about 200 yards northwest of the Petoskey Manufacturing Company (PMC), the suspected source of contamination of the well field. Water from the City of Petoskey's Ingalls Shore Municipal Well contains volatile organic compounds (VOCs), primarily trichloroethylene (TCE), from the PMC site. A groundwater contaminant plume has migrated from PMC to the well, where it is being drawn into the city's water supply system. The contaminated Ingalls Shore Well is still being used to service the population of Petoskey. PMC has operated a die casting plant at this location since 1946 and a painting operation since the mid- to late 1960s. Disposal of spent solvents and paint sludge on the ground surface outside the PMC building has contaminated soils and groundwater in the vicinity of the site. Soils at the PMC facility contain high levels of VOCs and semi-VOCs and elevated levels of metals. There are approximately 7,000 people living within a 3-mile radius of the site. The population during the summer months increases to about 11,000. A high school, college, and hospital receive water from the municipal supply system. Three private wells are about ½ mile west of the contaminated municipal well. The nearest residence is less than 250 feet from the site.

Site Responsibility: This site is being addressed through Federal, State and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater at the site contains VOCs, including TCE. Soils at the site contain VOCs, semi-VOCs, pesticides, and elevated levels of metals. People may have been exposed to hazardous chemicals from the site by drinking or coming in direct contact with contaminated water from the contaminated municipal well. People could be exposed to hazardous chemicals at the Petoskey Municipal Well Field site by touching or ingesting contaminated soil at the PMC facility.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1981, analysis of the samples obtained from the area west of the PMC building indicated that elevated levels of VOCs were present in the soils. In 1982, at the direction of the Minnesota Department of Natural Resources (MDNR), PMC removed approximately 131 cubic yards of contaminated soil, backfilled the excavation, and capped it with a polymembrane liner. The MDNR conducted a groundwater study in 1982 and 1983. The study confirmed the presence of groundwater contamination and found that local groundwater flowed from the PMC site toward the Ingalls Shore water supply well when the well was pumping.



Entire Site: In 1987, PMC began an investigation to determine the nature and extent of contamination and evaluate cleanup alternatives to address the contamination. The MDNR took over the study in 1990 after PMC declared bankruptcy. In 1993, the EPA proposed an interim remedy for the Ingalls Shore Municipal Well, recommending that an air-stripper be constructed at the well to address VOC contamination. The interim remedy is currently being evaluated. The selection of a final cleanup remedy will follow.

Site Facts: Petoskey Manufacturing Company removed the most highly contaminated soils at MDNR's direction. The EPA issued Petoskey Manufacturing Company an Administrative Order in 1984, which required the company to carry out additional hydrogeologic studies near its property. The company signed a Consent Order in 1987 to carry out a complete study of the site; however, Petoskey Manufacturing Company has filed for bankruptcy and the State has taken over the investigation.

Environmental Progress



The removal of contaminated soil from the Petoskey Manufacturing property has reduced the potential for continued contamination of the Petoskey Municipal Well Field site, while investigations leading to the selection of the final cleanup remedy are underway.

Site Repository



Petoskey Public Library, 451 East Mitchell Street, Petoskey, MI 49770

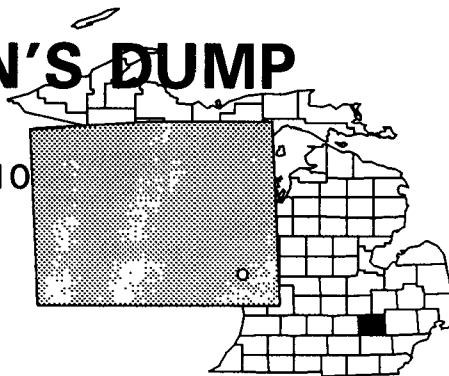
RASMUSSEN'S DUMP

MICHIGAN

EPA ID# MID095402210

EPA REGION 5

Livingston County
Green Oak Township



Site Description

The Rasmussen's Dump site, which was previously a sand and gravel pit area used as a dump, is located on 35 acres in Green Oak Township. The dump was unlicensed and was known to have accepted both domestic and industrial solid and liquid wastes. The dump operated from the 1960s until 1972, when the Livingston County Health Department closed the site. During the 1970s, the northwestern section of the site was used as a gravel mine. In 1979, mining operations uncovered drums buried in an old dump area. In 1983, two piles of 1,500 to 2,000 drums were observed on site. Several hundred people live within a mile of the site. More than 1,800 people live within 3 miles of the landfill and use groundwater as a drinking water source. There are approximately 250 wells within 1 mile of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



A plume of contaminated groundwater extends to the northwest from the dump. Groundwater is contaminated with volatile organic compounds (VOCs). Soil sampling by the State revealed polychlorinated biphenyl (PCB) and organics contamination near a drum pile on the eastern side of the site. In 1985, the State installed a fence around the site to eliminate the health risks from accidental ingestion of and direct contact with contaminated soils, and groundwater.

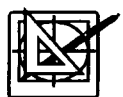
Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase directed at cleanup of the entire site.

Response Action Status



Immediate Actions: In 1984, the EPA constructed an access road to aid in site cleanup actions. Drums were excavated and transferred to a staging area on the site, where they were opened and sampled. Soil that was mixed in with the excavated drums was stockpiled in a lined area. Wastes were separated, and all liquid wastes were bulked and transported off site for disposal at federally approved disposal facilities. Solid and semi-solid drummed waste was shredded. All solids and shredded solids were stockpiled, and the former drum pile and staging areas were resampled. All contaminated soils were removed, and clean fill was spread over a large portion of the landfill to eliminate the drifting and blowing debris problem created by excavation of the landfill's surface cap. Approximately 344 tons of PCB solids, 400 gallons of base-neutral liquids, 800 gallons of flammable liquids, 1,720 cubic yards of contaminated soils and solids, and 3,000 empty drums were disposed of off site at EPA-approved facilities. In 1985, a security fence was installed around the site. In 1989, under EPA supervision, 11 of the potentially responsible parties excavated, analyzed, and disposed of surface and buried drums, associated wastes, and contaminated soils. These actions were completed in 1990.



Entire Site: The State, with EPA assistance, has conducted an investigation into the nature and extent of the contamination at the site. Based on the results of this investigation, completed in early 1991, the EPA has chosen a cleanup remedy that includes extracting, treating, and reinjecting groundwater, monitoring groundwater, capping the landfill portion of the site, disposing of any drums unearthed during capping, and adding fencing and deed restrictions as necessary. Groundwater will be treated using chemical precipitation of heavy metals, bioremediation, air stripping, and granular activated carbon as necessary. The design of the remedies is expected to be completed in early 1995.

Site Facts: Under the terms of an EPA Administrative Order, the potentially responsible parties performed immediate actions at the site.

Environmental Progress



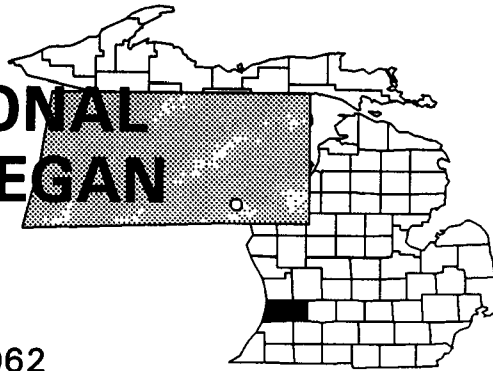
By fencing the site and removing most of the contaminated soils, solids, and drums of hazardous materials, the potential for exposure to contaminants at the Rasmussen's Dump site has been reduced while the design of final cleanup remedies is underway.

Site Repository



Hamburg Township Library, 7225 Stone Street, Hamburg, MI 48139

**ROCKWELL
INTERNATIONAL
CORP. (ALLEGAN
PLANT)
MICHIGAN**
EPA ID# MID006028062



EPA REGION 5
Allegan County
Allegan

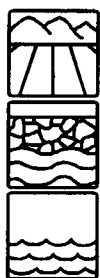
Site Description

The 30-acre Rockwell International Corp. (Allegan Plant) site has been used to manufacture universal joints for heavy trucks and construction equipment since the early 1900s. From 1910 to 1920, the Allegan Mirror and Plate Glass Company manufactured glass products at what is now known as the Rockwell International Plant site. In 1920, the site was purchased by the Blood Brothers Machine Company and the production of universal joints began. From 1910 to 1960, wastewater containing sludge, heavy metals, process wastes, and oils was discharged into the Kalamazoo River. Later these waste streams were discharged into an unlined settling pond that drained to the Kalamazoo River. In the late 1960s, when this pond reached a saturation point in terms of sludge depth, the pond was abandoned and buried, and three new unlined ponds were constructed. In 1971, a water treatment system was installed, which included two concrete underground storage tanks. Three new treatment ponds were also constructed to contain treated water, untreated non-contact cooling water, and sludge. The original collection pond, with the sludge still in it, was filled in and built over. In 1974, oil seeps were detected along the river bank adjacent to the new wastewater ponds. A 3-foot-deep clay dike constructed between the ponds and the Kalamazoo River in 1975 was effective for about a year. In 1976, it was determined that the seepage to the river from groundwater originated from the two concrete underground storage tanks; the source of the leakage has since been eliminated. However, oils remaining within the soils periodically seep into the river. In 1991, the plant was closed, and the western portion of the site, including the three wastewater treatment ponds, were sold. The former manufacturing building on the western portion of the site is currently occupied by a number of small businesses; however, the wastewater treatment plant and ponds are no longer in use. There are an estimated 8,150 people living within 3 miles of the site. The area is served by a public water supply system. About 6,900 people within 3 miles of the site depend on the shallow groundwater as a source of drinking water. The closest residential well is ½ mile from the site. The site is downgradient from the current public water supply system.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY
Proposed Date: 04/10/85
Final Date: 07/22/87

Threats and Contaminants



On-site soils and groundwater are potentially contaminated with volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), copper, zinc, manganese, mercury, barium, and heavy metals including lead, arsenic, and cyanide. River sediments contain heavy metals, polycyclic aromatic hydrocarbons (PAHs), and PCBs. People may be at risk from direct contact with contaminated sediments while using the river for recreational purposes. The threat of local residents' exposure to site contaminants has been minimized by site security; however, the estimated 10 to 15 occupants of the current site facilities may be exposed to chemicals through direct contact with contaminated surface soil.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: Three oil recovery wells were installed in the late 1970s to control the movement of the oil. These wells operated by returning contaminated groundwater to the wastewater treatment system for reprocessing. The wells operated from 1976 until late 1991 when the pumps were deactivated because they were no longer recovering any free oil. In 1978, approximately 3,700 cubic yards of sludge from Pond Number Two were removed and disposed of off site in a State-approved landfill. In 1992, however, light non-aqueous phase liquids (LNAPL) were discovered in several site wells, and a small intermittent oil seep into the Kalamazoo River was identified adjacent to the former wastewater treatment ponds. Oil booms were installed along the bank of the river to contain the minor seepage, which appears to be the result of residual waste oils remaining in the soil from previous operations. In addition, two of the three oil recovery wells were reactivated. These wells were in operation for approximately nine months, after which they were deactivated because they did not appear to have any effect on the LNAPL observed in the surrounding groundwater monitoring wells.



Entire Site: Rockwell, the party potentially responsible for the site contamination, currently is conducting an investigation into the nature and extent of contamination at the site with guidance from the EPA. Six potential contamination sources are being investigated including: the former oil/water wastewater treatment facility; the three inactive treatment ponds; the former collection pond that was filled in 1972; a former oil floatation house discovered and the former Allegan city dump, upon which a parking lot was built; the Allegan city wastewater treatment plant; and water and sediments in the Kalamazoo River. The investigation will define the contaminants of concern and will recommend alternatives for the final cleanup. The investigation is expected to be completed in 1995.

Site Facts: In 1988, Rockwell and the EPA signed a Consent Order, requiring the company to conduct a study of the nature and extent of site contamination.

Environmental Progress



The installation of oil recovery wells to direct contaminated water to a treatment system, the removal of a substantial amount of sludge, and the installation of oil booms to contain minor oil seepage have reduced the potential of direct exposure to hazardous materials at the Rockwell International Corp. (Allegan Plant) site. Investigations are currently being conducted to select the final cleanup remedies for the various areas of the site.

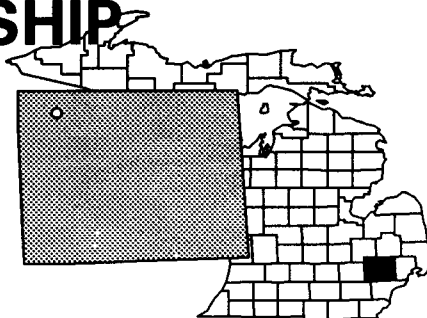
Site Repository



Allegan Public Library, 331 Hubbard Street, Allegan, MI 49010

ROSE TOWNSHIP DUMP MICHIGAN

EPA ID# MID980499842



EPA REGION 5

Oakland County
Rose Township

Other Names:
Dorsey Dump

Site Description

Approximately 12 acres of the 110-acre Rose Township Dump site once were used for the disposal of paint sludges and other wastes on surface soils, in buried drums, and in lagoons. Unregulated dumping of industrial wastes, including solvents, paint sludges, and polychlorinated biphenyls (PCBs), occurred at the site between 1966 and 1968. The wastes were buried in a 12-acre portion of the site. Bulk wastes also were discharged to the surface or into shallow lagoons or pits in the area. Liquid wastes from an unknown number of tank trucks were dumped onto the ground, and approximately 5,000 drums were disposed of on the site. In 1980, the State removed the 55-gallon drums and scraped PCB-contaminated soil into three large piles. The area is fenced, and warning signs have been posted. The total population of Rose Township is about 4,600 people. Less than a dozen residences are adjacent to the site. A road borders the site on the north, and there is a concentration of buildings northeast of the site, near Buckhorn Lake. Approximately 4,600 residents depend on local groundwater for domestic uses. Residents use local aquifers for potable water; the nearest residential well is located 1,600 feet from the site. Two apparently distinct plumes of groundwater contamination are emanating from the site, but there are no residential wells within the contaminant plumes. The site is surrounded primarily by wetlands and woods. There is an abundance of wildlife on site. Surface water runoff drains into marshes and wetlands that border the site. Some nearby lakes are used for recreation, and the marshes are unfenced.

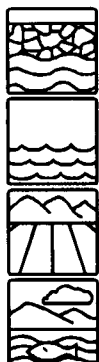
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater, surface water, and soils are contaminated with heavy metals and volatile organic compounds (VOCs) including toluene, trichloroethylene (TCE), and benzene. PCBs were detected in off-site sediment samples. Soil also is contaminated with phthalates and DDT, a pesticide. The potential health risks to people at this site include direct contact with or accidental ingestion of contaminated groundwater, surface water, soil, or sediment. Hunting and fishing are known activities in the area; therefore, eating fish and wildlife could present a health threat. Wetlands also may be threatened.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase directed at cleanup of the entire site.

Response Action Status



Immediate Actions: In 1980, the Michigan Department of Natural Resources (MDNR) removed approximately 5,000 drums of liquid wastes from the site. In 1985, the EPA identified, segregated, staged, and sampled drums for disposal purposes. Two areas of the site were fenced to restrict contact with PCBs- and lead-contaminated surface soils. A heavy-duty vehicle gate was installed at the access road entrance. Warning signs were posted along all newly-fenced areas. In 1986, 31 drums were overpacked, labeled, and shipped off site for disposal. One load of bulk wastes totaling 20 cubic yards also was shipped off site for disposal.



Entire Site: The selected cleanup technologies addressing site contamination include: excavating approximately 25,000 cubic yards of PCB-contaminated surface soil; incinerating the excavated soils and returning them to the site; installing and operating a groundwater extraction and treatment system to clean contaminated groundwater and discharging it to the wetlands adjacent to the site; installing groundwater monitoring wells on and near the site to monitor groundwater underneath the site for the next 30 years; constructing a fence around the site; collecting and analyzing samples from the wetlands adjacent to the site; and testing the potential effectiveness of soil-flushing technology to clean up contaminated subsurface soil. Currently the potentially responsible parties are testing the use of soil vapor extraction for subsurface cleanup. The potentially responsible parties began preparing the technical specifications and design for the selected cleanup remedies in late 1989. Pre-design activities included soil and water sampling for each respective cleanup technology. The incinerator was completed in early 1994. The northern plume pump and treat system will be enhanced to provide adequate capture of plume.

Site Facts: As of 1986, 28 potentially responsible parties had been identified and notified of liability. In 1987, the EPA and the State began negotiating cleanup responsibilities with these parties. In 1988, the EPA and 12 parties signed a Consent Decree, requiring the parties to implement and pay for cleanup activities.

Environmental Progress



Removing the contaminated drums and surrounding soils and fencing the area have resulted in a reduction of immediate threats to the surrounding communities and the environment at the Rose Township Dump Site while the final cleanup remedies are underway.

Site Repositories

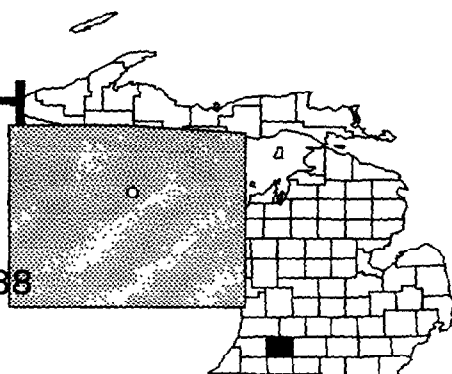


Holly Township Library, 1116 North Saginaw Street, Holly, MI 48442

Rose Township Office

ROTO-FINISH CO., INC. MICHIGAN

EPA ID# MID005340088



EPA REGION 5

Kalamazoo County
Portage

Site Description

The 7½-acre Roto-Finish Co., Inc. site is an abandoned specialty equipment manufacturing facility that operated from approximately 1950 until 1988. The company designed and manufactured specialized equipment for burring and polishing castings, mechanical parts, and similar objects requiring smooth finishes. The site contains two buildings where plant operations were conducted, a large building along the west side of the site and a smaller building to the east. Three seepage lagoons were located on the eastern side of the site. Manufacturing and processing wastes were pumped into two unlined, settling lagoons. The lagoons often overflowed. An estimated 83,000 gallons of waste were pumped into these lagoons. Two stormwater retention basins on site were used to collect surface water runoff, which subsequently evaporated into the air or infiltrated and percolated through the soils. The site also contains several paved parking areas. In 1980, the lagoons were abandoned and the company began discharging all wastes to the municipal sewer system. In 1981, drums containing formaldehyde, sodium chromate, and MOCA (an organic chemical compound used as a curing agent in the fabrication of plastic molds) were observed on site. In 1982, lagoon sludges and surrounding soils were removed and filled with clean soil. Approximately 45,000 to 50,000 people live within 3 miles of the site. Groundwater from an unconfined aquifer in the area is used as a municipal, industrial, and domestic water source. Municipal wells within a mile of the site provide water for an estimated 100,000 residents. Davis Creek, also located within 1 mile of the site, leads into the Kalamazoo River, more than 3 miles downstream of the site. The Kalamazoo River is used for recreational activities including fishing and swimming.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84
Final Date: 06/10/86

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs) including trichloroethylene (TCE) vinyl chloride, 1,1-dichloroethene, and 1,1,1-trichloroethane. Soil may be contaminated with MOCA, VOCs, and metals including arsenic, beryllium, cadmium, lead, and manganese. Potential health risks to people include ingestion of and direct contact with contaminated groundwater and soils. The site is bordered by a chain-link security fence with locking access gates.

Cleanup Approach

The site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: The party potentially responsible for the site contamination currently is conducting an investigation into the nature and extent of contamination at the site.

The investigation will define the contaminants of concern and will result in recommendations for the final cleanup. Soil borings, well installation, and a study of groundwater flow direction have been undertaken. A second study phase was completed in 1991, and a third phase was initiated in 1993. A decision on cleanup actions is planned for 1995; however, the potentially responsible parties for the Roto-Finish site have proposed to install a temporary groundwater extraction system to contain contaminated groundwater until the investigation is complete. This proposal is currently being evaluated.

Environmental Progress



After listing the Roto-Finish Co., Inc. site on the NPL, the EPA conducted preliminary evaluations of the site conditions and determined that the site does not present an imminent threat to the surrounding population or the environment while investigations leading to selection of the final cleanup remedies are taking place.

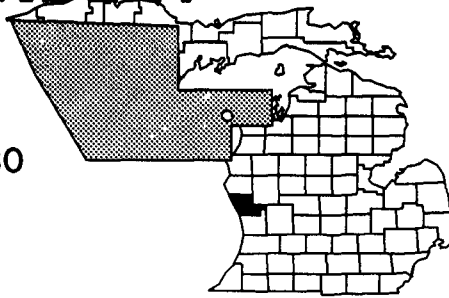
Site Repository



Portage Public Library, 300 Library Lane, Portage, MI 49002

SCA INDEPENDENT LANDFILL MICHIGAN

EPA ID# MID000724930



EPA REGION 5

Muskegon County
Muskegon Heights

Other Names:
Independent Landfill

Site Description

The 100-acre SCA Independent Landfill site operated as a domestic and industrial waste landfill from 1965 until the late 1970s. The landfill, which occupies about 1/3 of the site, closed in 1987. Two unlined refuse cells are spread over 10½ acres of the site. Two inadequately lined cells occupy an additional 20 acres, and a 4-acre cell, which closed in 1987 and was covered with 3 feet of clay, is situated directly on top of the southern half of the two unlined cells. In addition, a 6-acre parcel in the northeastern section of the site received refuse. All areas have been closed and capped. The closure plan implemented by SCA Services, a potentially responsible party, included a leachate management plan, groundwater monitoring, gas vents, a final cover, and seeding of the site. In 1985, SCA Services completed a hydrogeologic study. In 1986, the State concluded that site contamination was minor and that no immediate groundwater cleanup activities were required. The lined waste cells have been vented to prevent the buildup of gases. There are approximately 10,000 people living within 3 miles of the site. There also are 6 schools and 7 churches within 3 miles of the site. The landfill is located in a swampy area about 1/8 mile south of Black Creek, a coldwater stream. The groundwater flow apparently empties into wetlands that border Black Creek, a stream that has been re-stocked successfully with trout since 1987. A mobile home park with more than 300 families is located ½ mile north of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with heavy metals and volatile organic compounds (VOCs) including xylene, benzene, and toluene. Surface water potentially is contaminated with VOCs. Potential health threats to people include direct contact with or ingestion of contaminated groundwater and surface water. Because the landfill is in a flood plain, flood waters could expose the landfill contents and spread the pollutants to the stream and low-lying areas. Wetland areas also may be threatened.

Cleanup Approach

The site is being addressed in one long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: An investigation of site contamination is underway to determine the nature and extent of contamination at the landfill, and in the groundwater and surface water. The investigation is scheduled to be completed in 1997, at which time alternative cleanup remedies will be evaluated.

Site Facts: In 1983, SCA Services and the State signed a Consent Agreement to provide for the closure of the two unlined cells. In October 1993, Waste Management Inc. and the State signed a Consent Agreement, whereby the company agreed to study the type and extent of contamination at the Site, assess potential and actual risks to public health and the environment, and evaluate potential cleanup alternatives.

Environmental Progress



After the closure of the landfill and an initial site assessment by the State, the EPA decided that no immediate actions were necessary at the SCA Independent Landfill site while additional studies are conducted.

Site Repository



Not established.

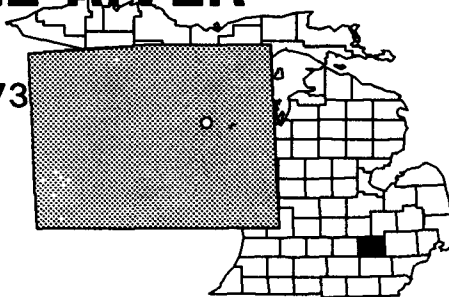
SHIAWASSEE RIVER

MICHIGAN

EPA ID# MID980794473

EPA REGION 5

Livingston County
Howell



Site Description

The Shiawassee River flows through the communities of Byron, Vernon, and Corunna. All three communities are located downstream of the Western Wheel Company and Cast Forge Company, both of which formerly manufactured aluminum cast products since 1969. Until 1973, wastewater contaminated by hydraulic fluids containing polychlorinated biphenyls (PCBs) was discharged to the South Branch of the Shiawassee River. From 1973 to 1977, wastewater was discharged into an on-site lagoon. Both the site property and the river contain PCBs at elevated levels.

Approximately 1,380 people within 3 miles of the Western Wheel Company are served by the deeper aquifer beneath the site. Discharges from the on-site lagoon, as well as periodic overflows, have contaminated wetlands located near the site. Subsequently, the Shiawassee River has been contaminated. The river is used for many forms of recreation. PCBs have been found in fish as far as 52 miles downstream.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



PCBs have been detected in fish, sediments, and soil. Wetland contamination has been identified. The health threat of greatest concern is eating PCB-contaminated fish. Other health threats include direct contact with contaminated river sediments and soils.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: The Cast Forge Company removed the lagoon and cleaned up the PCB-contaminated soil and sediment from the property. In 1982, the State began dredging the South Branch of the Shiawassee River using resources from a settlement with the Cast Forge Company. The first mile of the river, downstream from the plant, was vacuumed, removing 2,600 pounds of PCBs.



Entire Site: The State, with EPA assistance, is conducting an investigation into remaining soil and sediment contamination at the site. The investigation will define the contaminants and recommend alternatives for final cleanup. Field work includes groundwater, surface water, sediment, and soil sampling. The flood plains and industrial area are being sampled. The investigation is planned to be completed in 1995.

Environmental Progress



The removal of the lagoon and PCB-contaminated soil and sediments and the dredging of the river have reduced the potential for exposure to contaminants from the Shiawassee River site while studies are taking place and cleanup activities are being planned.

Site Repository



Howell Township Hall, 3525 Byron Road, Howell, MI 48843

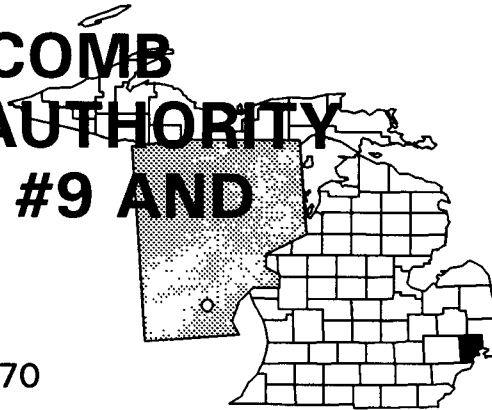
SOUTH MACOMB DISPOSAL AUTHORITY (LANDFILLS #9 AND #9A)

MICHIGAN

EPA ID# MID069826170

EPA REGION 5

Macomb County
Macomb Township



Site Description

The 159-acre South Macomb Disposal Authority site is made up of two adjacent municipal landfills, Landfills #9 and #9a, that have been inactive since 1975. In the early 1960s, municipal officials formed the South Macomb Disposal Authority to help in the management and disposal of municipal refuse. Between 1968 and 1975, the landfills received approximately 1,880,000 cubic yards of municipal refuse. Reportedly, no hazardous wastes were disposed of in the landfills; however, hazardous chemicals have been detected on and around the site. Prior to 1968, the site was used as a sand and gravel excavation pit and for agricultural purposes. Landfill #9 reached capacity in 1971 and was subsequently covered with a soil cap and vegetation. Investigations in 1971 concluded that leachate was discharging from Landfill #9 to the McBride Drain. Landfill #9a stopped receiving municipal refuse in 1975 and was covered with a soil cap and vegetation. In 1975, the State inspected the site and concluded that leachate was migrating from Landfill #9a. From 1977 through 1981, the South Macomb Disposal Authority implemented various activities to stop leachate seepage from the landfills which included improving erosion controls, tilling, regrading, covering the surface of the site, and installing leachate collection systems. Two leachate collection systems are in operation on site. Surface erosion of the landfills is evident around the perimeter of the site. Water sampling of residential wells near the site in 1983 and 1984 indicated contamination. The site is partially fenced. Approximately 75 homes are located within a 1-mile radius of the site. Two contaminated aquifers are present beneath the site; a third, deeper aquifer is not contaminated. The residents of 12 homes near the site have been advised not to use water from their wells and have been connected to the City of Detroit Municipal Water Supply System. McBride Drain, an open channel, receives runoff from the site and flows to the North Branch of the Clinton River, 1½ miles from the site. Both McBride Drain and the Clinton River are used for recreational and agricultural purposes.

Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



Groundwater monitoring wells have detected the presence of volatile organic compounds (VOCs), heavy metals, and nitrate. Surface soils are contaminated with heavy metals and VOCs. The primary potential health risk to people includes drinking or coming in direct contact with contaminated groundwater. Other potential health threats include accidental ingestion of or direct contact with contaminated soil.

Cleanup Approach

This site is being addressed in two phases: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: Leachate controls have been put into place that include covering the landfill with soil and installing a collection system and holding tank. Based on recent visits to the site, the erosion control measures are failing in places on the landfill.

Residences with contaminated wells were connected to the municipal water supply.



Entire Site: The EPA completed its investigation into the nature and extent of site contamination and potential effects on public health and the environment in 1990. The investigation included soil gas testing, air sampling, surface soil sampling and testing, leachate sampling, groundwater sampling, and subsurface soil sampling. Methods of groundwater extraction/collection and on-site treatment were investigated by the EPA until the responsibility was turned over to the State of Michigan. In 1991, a remedy was selected that called for extraction of contaminated groundwater and treating it by air stripping, carbon adsorption, oxidation/precipitation, filtration, and discharge to McBride Drain. The Michigan Department of Natural Resources (MDNR) and the potentially responsible parties are currently involved in a state court action regarding the implementation of the remedy at the site. A separate cleanup phase related to the contents of the landfill is being planned.

Environmental Progress



Initial actions including covering the landfills with soil, installing leachate collection systems, and providing an alternate water supply to affected residents have reduced the potential of exposure to contaminants from the South Macomb Disposal Authority (Landfills #9 and #9A) site while plans for final cleanup are being formulated.

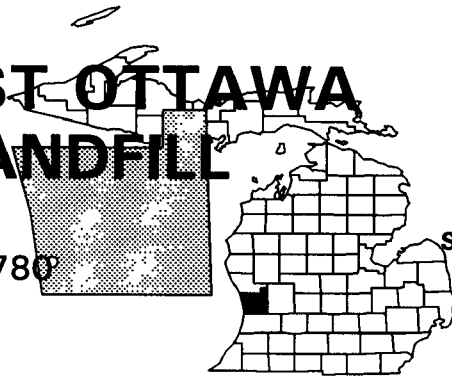
Site Repository



Macomb County Library, 16480 Hall Road, Mt. Clemens, MI 48044

SOUTHWEST OTTAWA COUNTY LANDFILL MICHIGAN

EPA ID# MID980608780



EPA REGION 5

Ottawa County
Park Township

Other Names:
South Ottawa Disposal Corporation

Site Description

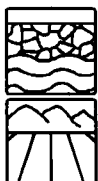
The 43-acre Southwest Ottawa County Landfill site operated as a landfill under license by the State until its closure in 1981. The landfill was constructed by Ottawa County in 1968 and received solvents, heavy metals, sludge, oils, municipal refuse, and drums containing unspecified wastes. The site also accepted dewatering sludges and contaminated soils from a neighboring NPL site called the Waste Management-Holland Lagoons. When the State closed the site in 1981, it required the County to cover the landfill and to provide hookups to the municipal water system for the residences with potentially contaminated wells. Approximately 100 people live within 1/2 mile of the site; however, the area is rapidly developing and a new subdivision has been created near the site. Lake Michigan also is located approximately 1/2 mile from the site, while Lake Macatawa is located approximately 2 miles from the site. Most private residences with wells potentially contaminated by the landfill leachate have been connected to the City of Holland water supply.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



The groundwater is contaminated with volatile organic compounds (VOCs), xylenes, and heavy metals. The contamination of the subsurface soil below the landfill is contributing to the groundwater contamination. The primary health threat of concern is drinking contaminated groundwater or eating plants irrigated with contaminated groundwater. The site is fenced, therefore minimizing the potential for contact.

Cleanup Approach

Response Action Status



Groundwater: Most of the private residences with wells potentially affected by the landfill leachate have been connected to the City of Holland water supply. The County installed a series of extraction wells and an activated carbon adsorption system. The groundwater restoration system became operational in 1987. Two purge wells were installed near the landfill by the County, and initially five wells were installed 1/2 mile from the site to capture residual groundwater contamination. The State monitors the effectiveness of the groundwater treatment system and has subsequently requested that the County install five additional purge wells to capture contaminants in breakthrough areas. All pumped and treated water is discharged under a State permit. Monitoring wells along the perimeter of the groundwater plume were installed in 1993.

Site Facts: Under a Consent Order, the landfill was closed in 1981. In 1984, a Groundwater Restoration Agreement between the County and the State resulted in the installation of extraction wells and a carbon adsorption water treatment system.

Environmental Progress



The provision of an alternate water supply by Ottawa County and fencing the site has eliminated the potential for exposure to contaminated groundwater near the Southwest Ottawa County Landfill site. All construction of cleanup remedies at the site is complete. The operation of the groundwater restoration system will continue to reduce groundwater contamination levels until site cleanup goals are achieved.

Site Repository

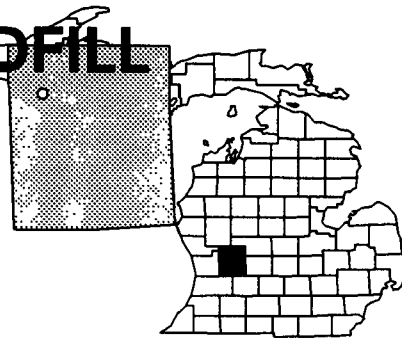


Park Township Offices, 52-152nd Avenue, Holland, MI 49424, (616) 399-4520

SPARTA LANDFILL

MICHIGAN

EPA ID# MID000268136



EPA REGION 5

Kent County
Sparta Township

Site Description

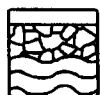
The 27-acre Sparta Landfill site is a closed municipal landfill located approximately 1 mile southeast of the Village of Sparta and 1/5 of a mile from the Rogue River. From approximately the 1940s until 1972, the Schwab Dump operated about 12 acres of the landfill. During this time the open dump accepted general, residential, commercial, and solid wastes. In 1972, Kent County began operation of the Sparta Landfill on property adjacent to the Schwab Dump. In 1973, Kent County acquired the Schwab Dump property. The licensed landfill accepted municipal refuse and industrial wastes under Michigan Public Act 87. In 1977, the landfill was closed and a two-foot sand cover was placed over the site. In 1979, the Michigan Department of Natural Resources (MDNR) detected volatile organic compounds (VOCs) in on-site monitoring wells and nearby residential wells. Kent County replaced four residential wells and provided bottled water for other affected homes. Approximately 200 residences are located within a 1/2 mile radius from the site. Approximately 15 residences are located directly adjacent to the site. The City of Rockford's municipal supply intakes are located on the Rogue River, approximately 10 miles downstream from the site. The public water supply wells for Sparta are located near a tributary of the Rogue River, approximately 2 miles upstream from the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82
Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with VOCs and inorganics. Potential health threats to people include ingesting or coming into direct contact with contaminated water and breathing contaminated water vapors related to household uses.

Cleanup Approach

This site is being addressed in two stages: emergency actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Emergency Actions: At the request of the State, Kent County installed deep wells for four nearby affected residences and provided bottled water for other affected homes.



Entire Site: The potentially responsible parties are conducting an investigation into the nature and extent of contamination at the site. The investigation, which began in the fall of 1993, will define the contaminants and will recommend alternatives for final cleanup. It is scheduled to be completed in late 1997.

Environmental Progress



Providing an alternate source of water to affected residences has eliminated the potential of exposure to contaminated drinking water from the Sparta Landfill site and will continue to protect residents near this site while cleanup activities are being planned.

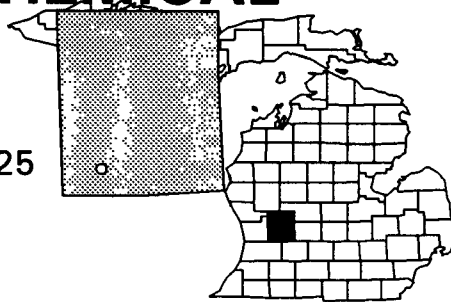
Site Repository



Sparta Township Library, 80 North Union, Sparta, Michigan 49345

SPARTAN CHEMICAL COMPANY MICHIGAN

EPA ID# MID079300125



EPA REGION 5

Kent County
Wyoming

Site Description

The 2-acre Spartan Chemical Company site repackages, blends, and distributes liquid industrial chemicals. Chemicals are not currently manufactured on site. Prior to 1963, the company discharged its wastewater to the groundwater. In 1981, five residential wells near the site were found to be contaminated with volatile organic chemicals (VOCs). In 1975, VOC contamination was discovered in groundwater during dewatering activities at a nearby facility. Spartan Chemical was the only known handler of these chemicals in the area at that time. These wells have been abandoned, and all five residences have been connected to the public water supply. An underlying clay layer has prevented contamination of deeper aquifers. In 1986, an underground storage tank containing toluene was found to be leaking. The tank has been emptied and is no longer in use. Approximately 7,200 people, some of whom use private wells, live within 3 miles of the site. There are residences closer than ¼ mile. There are no public water supply wells in this area; public drinking water is drawn from Lake Michigan.

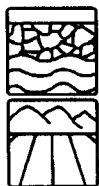
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with VOCs, primarily from solvent and chemical discharge spills and leaks. Currently there are no potential health threats associated with this site, because disposal of wastewater to the groundwater stopped in 1963 and all aboveground storage tanks rest on concrete pads surrounded by containment walls.

Cleanup Approach

This site is being addressed in three stages: initial actions and two long-term remedial phases focusing on soil and groundwater cleanup.

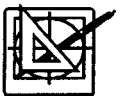
Response Action Status



Initial Actions: Five underground storage tanks were removed by the site owner.



Soil: An investigation into the nature and extent of contamination of the soil began in early 1994 and is expected to be completed in mid-1995, at which time a feasibility study will begin. The State anticipates the selection of a remedy, potentially soil vapor extraction, in late 1995.



Groundwater: The potentially responsible party conducted a study to identify the location of groundwater contamination. The party constructed a purge well and an air stripping groundwater treatment system. The purge well was operational from 1987 until recently, when it was shut down temporarily to undergo design modifications. The original groundwater treatment system was found not to have cleaned effectively. Therefore, the State is considering combining the remedies for both the groundwater and soil. Design is currently on hold until investigations into the nature and extent of contamination of the soil are completed.

Site Facts: A Consent Order was signed by a potentially responsible party, requiring the party to conduct a site investigation and clean up the groundwater. The potentially responsible party has since gone bankrupt and the site has been taken over by the State of Michigan, with assistance from the EPA.

Environmental Progress



Five underground storage tanks were also removed by the owner of Spartan Chemical Company under guidance of the State, which has reduced the potential for continued site contamination while final cleanup actions are being planned.

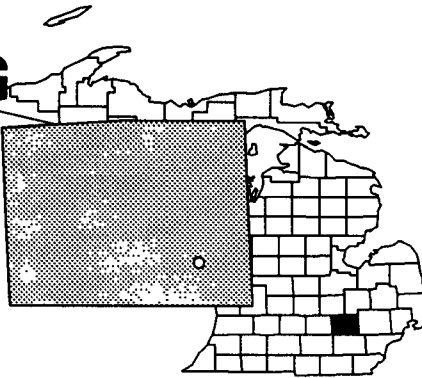
Site Repository



Wyoming Public Library, 3350 Michael SW, Wyoming, Michigan 49509

SPIEGELBERG LANDFILL MICHIGAN

EPA ID# MID980794481



EPA REGION 5
Livingston County
Green Oak Township

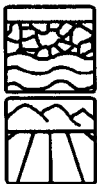
Site Description

The 115-acre Spiegelberg Landfill site is being mined for sand, gravel, and peat deposits. From 1966 to 1977, the site was used for the disposal of domestic waste, with the main disposal area located in an abandoned sand and gravel pit. From 1967 to 1978, paint sludge was dumped in one of the excavations of the gravel pit. The paint sludge area was the site's major source of contamination. From 1988 to 1989 the paint sludge and underlying soils which reached down to the groundwater table, were removed and disposed of in a permitted secure landfill. The Spiegelberg Landfill site is adjacent to Rasmussen's Dump, another NPL site. Several hundred people live within 1 mile of the site. More than 18,000 people live within 3 miles of the landfill and use groundwater as a drinking water source. There are approximately 250 wells within 1 mile of the site. The uncontaminated portion of the site is used for mining of sand, gravel, peat mining and cattle grazing.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY Proposed Date: 12/30/82 Final Date: 09/08/83

Threats and Contaminants



Lead, volatile organic compounds (VOCs), and other organics are present in the groundwater. Soil was contaminated with lead, VOCs, and other organics. Potential health threats to people include accidentally ingesting or coming into direct contact with contaminated groundwater or soil.

Cleanup Approach

This site is being addressed in two long-term remedial phases focusing on cleanup of the paint sludge area and groundwater cleanup.

Response Action Status



Paint Sludge Area: The selected cleanup remedy to address the source of the contamination included: excavation of waste material; off-site incineration of the excavated liquid waste material; and disposal of soils into a landfill. The potentially responsible parties, under EPA oversight, completed excavation, separation, and incineration of wastes and landfilling of 58,500 tons of waste and soils in late 1989. These actions included removing contaminated soils that reached down to the groundwater from the paint sludge disposal area, and backfilling the area with clean gravel.



Groundwater: In 1990, the State completed an investigation into the nature and extent of groundwater contamination at the site and selected a remedy for the final cleanup of the groundwater. The EPA chose to pump and treat groundwater and reinject it to injection wells. The technology for this cleanup remedy includes chemical precipitation, bioremediation, air stripping, and carbon adsorption, as necessary. Deed restrictions will be used to restrict access to groundwater. Design of the selected remedy was completed in the summer of 1994, and cleanup activities are expected completed by mid-1995.

Site Facts: The EPA, the State, and the potentially responsible parties reached an agreement requiring the parties to clean up the liquid and solid waste at the site.

Environmental Progress



The removal of containers of waste and contaminated soil and incineration of liquid wastes have reduced the potential for exposure to contaminated materials at the Spiegelberg Landfill site while groundwater cleanup activities are underway.

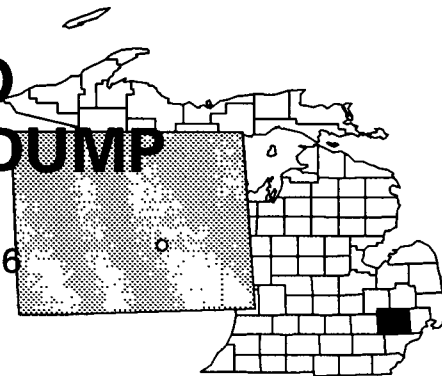
Site Repository



Hamburg Library, 7225 Stone Street, Hamburg, MI 48139

SPRINGFIELD TOWNSHIP DUMP MICHIGAN

EPA ID# MID980499966



EPA REGION 5

Oakland County
35 miles northwest of Detroit

Other Names:
Oakland County Landfill

Site Description

The 4-acre Springfield Township Dump was used for chemical waste disposal from 1966 to 1968. Liquid wastes and sludges were dumped into a low area at the site. During this same period, approximately 1,500 drums of waste materials also were dumped at the site. Drums of waste materials were stored at various locations throughout the dump. By 1980, 1,500 drums and 711 tons of contaminated soil were removed from the site by the Michigan Department of Natural Resources (MDNR). There are 25 residences located within 1 mile of the site, with the nearest residence located 800 feet from the site.

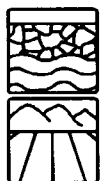
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs) and heavy metals including arsenic and lead. Soil contains polychlorinated biphenyls (PCBs), VOCs, phthalates, pesticides, and heavy metals including arsenic, barium, cadmium, and lead. PCBs and the pesticide dieldrin were detected in on-site sludge. Health threats to people stem from direct contact with contaminated soils, inhalation of contaminated dusts or vapors, or accidental ingestion of contaminated soil or groundwater.

Cleanup Approach

This site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: Warning signs, a security fence, and a locked gate blocking the access road were installed at the site. The state also completed the removal of 1,500 drums and 711 tons of polluted soil from the site by 1980.



Entire Site: The EPA and the State completed an investigation into soil and groundwater contamination at the site in 1990. Based on the results of the investigation, the EPA selected on-site incineration, solidification, and in-place vacuum extraction for soil cleanup, and extraction and carbon adsorption for groundwater cleanup. Design of these technologies and additional soil sampling began in 1991. The groundwater treatment system was installed by the potentially responsible parties and began operating in late 1993.

Environmental Progress



Removing drums and contaminated soil and installing a fence have reduced the potential for exposure to contaminated materials at the Springfield Township Dump site while final cleanup activities are underway.

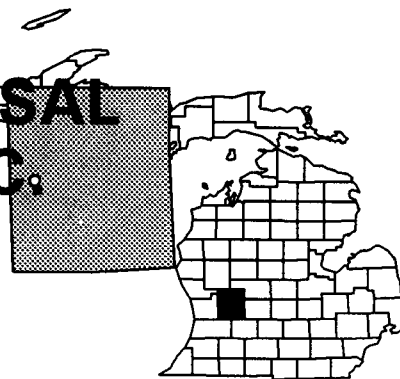
Site Repository



Springfield Township Hall, 650 Broadway Street, Davisburg, MI 48019

STATE DISPOSAL LANDFILL, INC. MICHIGAN

EPA ID# MID980609341



EPA REGION 5

Kent County
Plainfield Township

Site Description

The 30-acre State Disposal Landfill site operated from 1966 to 1972. From 1972 to 1976, the landfill was owned and operated by Waste Management, Inc. In 1975, the landfill received a permit from the Michigan Department of Natural Resources (MDNR) to accept general refuse. Since 1976, Waste Management has maintained the landfill. The landfill was closed in 1977 and now is covered with a layer of clay and equipped with methane gas vents. In 1985, the MDNR detected volatile organic compounds (VOCs) and heavy metals in monitoring wells downgradient of the site. Local health officials warned some well owners near the site to seek an alternative drinking water source. In 1985, Waste Management conducted a hydrogeological investigation of the site and installed monitoring wells. Approximately 13,000 people obtain drinking water from public and private wells within 3 miles of the site. Municipal water wells supplying Plainfield Township are 2 miles from the site and have been affected; however, alternate wells are now being used.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 06/24/88

Final Date: 02/21/90

Threats and Contaminants



The groundwater is contaminated with VOCs and heavy metals including barium and nickel. The groundwater could be hazardous to human health if touched or ingested. The site is fenced to minimize the potential for direct contact with contaminants from the landfill.

Cleanup Approach

This site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: Between 1989 and 1990, the State extended a permanent municipal water line to all affected residences. The potentially responsible parties have installed a security fence at the site to restrict access to the site.



Entire Site: Waste Management of North America is conducting an investigation, under State oversight to determine the nature and extent of contamination at the site. The State is conducting an off-site investigation of the contamination plume. Upon completion of the investigations, scheduled for late 1995, appropriate cleanup remedies will be selected.

Environmental Progress



The extension of the municipal water line has eliminated the potential for residents to be exposed to contaminated drinking water from the State Disposal Landfill site and will continue to protect nearby residents while site investigations are underway and cleanup activities are being planned. A security fence currently restricts access to the site and limits the potential for contact with contaminated materials.

Site Repository



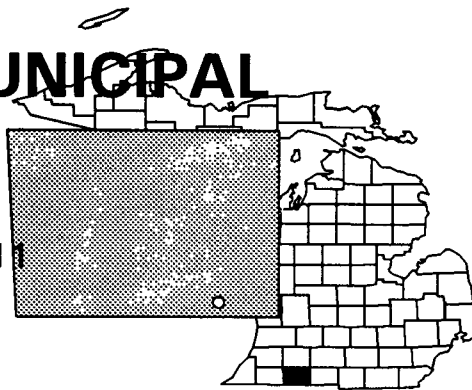
Plainfield Branch Library, 2650 5 mile Rd., N.E., Grand Rapids, MI 49505, (616)561-0611

STURGIS MUNICIPAL WELLS MICHIGAN

EPA ID# MID980703011

EPA REGION 5

St. Joseph County
Sturgis



Site Description

Routine sampling by the Michigan Department of Public Health (MDPH) in 1982 revealed that two of the four municipal wells serving the City of Sturgis were contaminated with volatile organic compounds (VOCs). These two wells, the Layne well and the Jackson well, are located on the west side of the City and supplied approximately half of the total city water at the time the contamination was detected. The MDPH advised the City of Sturgis to cease using these wells except during peak demands. Pumping capacity was increased on the two uncontaminated wells and the residents were advised to reduce their drinking water use. In 1983, two production wells at Ross Laboratories, located 2,000 feet northwest of the municipal wells, revealed VOC contamination. These wells were voluntarily removed from production and now are being used solely for cooling purposes. The Layne well was abandoned in 1985. The Jackson well was still used occasionally to verify that it was functional for emergency use. In 1985, another municipal well, the Kirsch well, was found to be contaminated with VOCs. This well subsequently was shut down. Of the four original municipal wells, only the Oaklawn well remains uncontaminated. Approximately 10,000 people live within the City of Sturgis, the majority of whom are served by the municipal water distribution system. The City currently relies on the Oaklawn well and two new wells to meet its water needs.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 09/08/83

Final Date: 09/21/84

Threats and Contaminants



The groundwater is contaminated with VOCs including trichloroethylene (TCE) and perchloroethylene (PCE). TCE, PCE, and other VOCs have been detected in the soil. Direct contact with or accidental ingestion of the contaminated groundwater and soil poses a potential health threat.

Cleanup Approach

This site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: The Michigan Department of Natural Resources (MDNR) conducted an investigation to determine the nature and extent of contamination at the site. The investigation consisted of groundwater monitoring, well installation, groundwater quality sampling, and soil gas testing. The final cleanup remedy was selected in 1991 and includes: groundwater extraction; groundwater treatment through air stripping; soil vapor extraction of the VOCs; and excavation and disposal of any remaining contaminated soil at a federally-approved facility. Construction of an interim groundwater extraction and treatment system was completed by the potentially responsible parties in April 1994. The interim system consists of one high-capacity extraction well (2,500 gallons per minute) located around the area where the highest concentrations of VOCs were detected in groundwater, and groundwater treatment through air stripping with treatment of "off gases" with granular activated carbon. This interim system will protect the municipal water supply and contain the plume until the final groundwater cleanup remedy is designed and fully implemented. Work remaining to complete the requirements of the remedy includes soil cleanup, an additional groundwater investigation, and possible additional groundwater cleanup. This work is being conducted by the MDNR with Federal money and is currently in the design phase. This design phase is expected to be completed the fall of 1996. All cleanup is expected to be completed by 2001.

Environmental Progress



Construction of an interim groundwater extraction and treatment system has contained the threat of groundwater contamination. In addition, the interim system will aid in the protection of the municipal water supply and be a starting point for construction of the remainder of the final cleanup remedy.

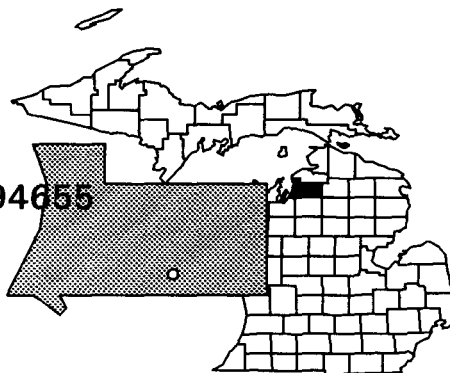
Site Repository



Sturgis City Library, 130 North Nottawa, Sturgis, MI 49091

TAR LAKE MICHIGAN

EPA ID# MID980794655



EPA REGION 5

Antrim County
Mancelona Township

Other Names:
Gulf and Western Antrim Property
(Tar Lake)
Antrim Iron Works

Site Description

The 200-acre Tar Lake site contains the structural remains of various manufacturing companies that produced iron. A secondary manufacturing process produced a waste similar to stillbottoms, which was discharged into a depression on site. Operations ceased in 1944. As long ago as 1949, groundwater contamination with phenolic compounds had been documented as close as 3 miles from the site. A fence has been installed around the site to restrict access. The total population served by well water within a 3-mile radius of the site is approximately 3,000; about 800 people are served by private wells, and the others receive municipal water. The municipal wells are located 1 mile from the site.

Site Responsibility: This site is being addressed through Federal and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Phenols and lead have been detected in the groundwater. Phenols and heavy metals including iron, lead, nickel, chromium, and copper have been detected in the sludge. Touching sludge poses an acute health hazard. Coming into direct contact with or ingesting contaminated groundwater also poses a health hazard. Sampling of the residential wells has not detected any of the contaminants, despite taste and odor problems.

Cleanup Approach

This site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: The Fifty-sixth Century Antrim Iron Company conducted a study to determine the nature and extent of site contamination. In 1992, a remedy was selected to address source control. The remedy includes excavation of the tar and contaminated soil and consolidation in on-site RCRA containment cells. In addition, a groundwater containment system is to be installed to keep the plume from migrating further. The potentially responsible parties are currently preparing the design of the remedy, which is expected to be completed in early 1996.

Site Facts: In 1986, the EPA issued an Administrative Order to the Fifty-Sixth Century Antrim Iron Company requiring them to conduct a site study and propose a remedy to clean up the site.

Environmental Progress



After adding this site to the NPL, the EPA performed preliminary investigations and determined that no immediate actions were required at the Tar Lake site while cleanup activities are being planned.

Site Repository



Mancelona Public Library, 202 West State Street, Mancelona, MI 49659

THERMO-CHEM, INC.

MICHIGAN

EPA ID# MID044567162



EPA REGION 5

Muskegon County
Egleston Township

Site Description

Thermo-Chem, Inc. was involved in solvent reprocessing and liquid waste disposal on this 10-acre site near Muskegon. Thermo-Chem, Inc. began operating in 1969 and continued until 1980. The company received paint waste, antifreeze waste, and spent halogenated and non-halogenated solvents. Distillation was used to regenerate usable solvents, and resulting sludges and residues were incinerated at the site. In addition, materials that were unsuitable for processing reportedly were incinerated at the site. Wastewater generated during the distillation processes and equipment cleaning was discharged into a series of three interconnected seepage pits. Two of the seepage pits were unlined, and the other was lined with clay to contain spills and contaminated wastes. All drums and bulk liquid wastes were removed from the site by late 1982. There are no available records documenting on-site disposal of hazardous materials. The process used for disposition of incinerator ash is not known. In 1991, the decision was made to include the 1 1/2-acre Thomas-Solvent property in the site, which is located adjacent to Thermo-Chem, Inc. and is contaminated with similar wastes. Black Creek, which flows into Mona Lake, is only 2,000 feet away from the site. Approximately 10,000 people live within a 3-mile radius of the site. The entire population in this area is served by groundwater either from community wells or private wells. A new mobile home park is under construction less than 1/2 mile from the Thermo-Chem site. The water supply for the park will come from four wells drilled to a depth of 80 feet.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84
Final Date: 06/10/86

Threats and Contaminants



The groundwater, soil, and on-site sludges are contaminated with volatile organic compounds (VOCs) including trichloroethylene (TCE), toluene, and xylene. Coming into direct contact with or ingesting contaminated groundwater and soil poses a health hazard. Surface drainage from the site is poor, and the permeable sand that exists below the site facilitates the movement of contaminants into the groundwater. Contaminants from the site could reach Black Creek and Mona Lake.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of on-site soils, sludges, and groundwater, and cleanup of Black Creek and the groundwater south of Black Creek. Design is now being conducted by the Army Corps of Engineers for on-site soils, sludges and groundwater. Black Creek and groundwater south of Black Creek are being further investigated.

Response Action Status



Immediate Actions: After a spill occurred in 1987, the EPA sampled, tested, and removed lab wastes. A security fence was installed around 8 acres of the site in 1989. In early 1991, 16 underground storage tanks were removed from this site.



On-Site Soils, Sludges, and Groundwater: The parties potentially responsible for the site contamination conducted an investigation to determine the nature and the extent of the contamination. The final cleanup remedy was selected in 1991, which includes fence installation; demolition of buildings and storage tanks; soil excavation and off-site incineration of highly contaminated soil and in-situ vapor extraction of less contaminated soil; groundwater extraction and treatment using filtration, air stripping, metal precipitation, and pH adjustments; discharge of treated groundwater to the Black Creek; groundwater monitoring; and soil testing underneath the demolished buildings and storage tanks. Design of these remedies began in the fall of 1992 and is expected to be completed in the spring of 1996.



Black Creek and Groundwater South of Black Creek: The potentially responsible parties are carrying out an investigation to determine the nature and extent of contamination in this area.

Site Facts: A Consent Order was signed in 1987 between the EPA and a committee composed of the potentially responsible parties. The committee assumed responsibility for conducting a site investigation and selecting remedies to clean up the site.

Environmental Progress



By removing contaminated soil from the spill area, fencing the Thermo-Chem property, and removing underground storage tanks, the EPA has reduced the potential for direct contact with hazardous materials while final cleanup activities are being planned for groundwater, soil, and sludge contamination, and further investigations addressing contamination of Black Creek are taking place.

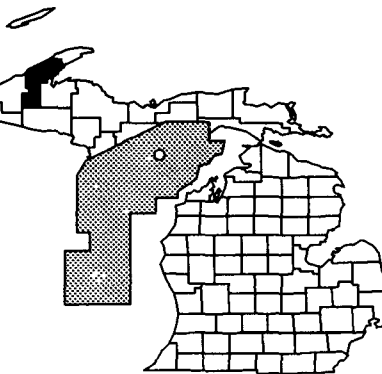
Site Repository



Hackley Public Library, 316 W. Webster, Muskegon, MI 49440
Egelston Township Hall, 5382 Apple Avenue, Muskegon, MI 49440

TORCH LAKE MICHIGAN

EPA ID# MID980901946



EPA REGION 5

Houghton County
Keweenaw Waterway

Site Description

Torch Lake is a 2,700-acre lake located in the Keweenaw Waterway in Michigan's Upper Peninsula. Copper mining activities in the area from the 1890s until 1969 produced mill tailings that contaminated the lake sediments and shoreline. About 200 million tons of copper mill tailings were dumped into the lake. The contaminated sediments are believed to be 70 feet thick in some areas, and surface sediments contain up to 2,000 parts per million of copper. The tailings deposited in the lake and on the shoreline were dredged up during the early part of the 1900s and were processed with flotation chemicals to reclaim copper. The tailings and much of the flotation chemicals were returned to the lake and the shoreline. The lake also has received mine pumpage, leaching chemicals, explosive residues and by-products, municipal and industrial trash, and sanitary wastes. In 1972, an estimated 27,000 gallons of cupric ammonium carbonate were released into the lake from storage vats. Barrels have been found at several sites along the shoreline of the lake. The only active industry on the Torch Lake shoreline is the Peninsula Copper Company, which reclaims copper oxide from scrap electronic circuit boards. During the early 1980s, the company dumped processing water containing 2,400 times the local sewage authority's allowable limits for copper and 100 times the limit for ammonia into the Tamarack lagoon system. Recently, the Michigan Department of Natural Resources (MDNR) funded a plan to monitor the lake and to restock fish populations. The population located within 1 mile of the lake is approximately 4,000. Most of the drinking water in the area comes from springs or a municipal well located 1/4 mile north of the lake, near the Trap Rock River. A public boat launch, beach, and park have been built on the northern shore of Torch Lake near the Village of Lake Linden.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84

Final Date: 06/10/86

Threats and Contaminants



The sediments and surface water are contaminated with copper and cupric ammonium carbonate. Coming into direct contact with or ingesting contaminated sediments and surface water poses a health hazard. The Michigan Department of Health issued a fish consumption advisory, since the contaminants already have affected the lake's fish and aquatic vegetation. There also is concern about the physical hazards present on the site. These include abandoned buildings, old machinery and equipment, and other discarded metal objects such as rusting barrels, which can be found on the shoreline and in the water.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of on-site tailings and slag piles and surface water, sediment, and groundwater.

Response Action Status



Immediate Actions: The EPA began field investigation activities in 1988 at Torch Lake to determine the nature and extent of contamination. A geophysical survey was conducted to locate drums buried in the tailings piles on the western shore and at the bottom of Torch Lake. Approximately 20 drums were located on the surface, and samples were taken to determine if the drums contained any toxic materials. In 1990, 12 additional drum locations were excavated and sampled. As a result of the test samples, the EPA removed the contaminated drums from the lake as well as contaminated soil beneath the drums.



On-Site Tailings/Slag Piles: In 1990, the EPA completed field work involving a bathymetric survey to locate submerged tailings and slag piles on the shore of Torch Lake. This data was used to study the nature and extent of contamination and to identify cleanup alternatives. In 1992, EPA selected a remedy which calls for these piles to be covered with soil and vegetation. Design of this remedy began in the fall of 1992 and is expected to be completed in late 1995.



Surface Water, Sediment, and Groundwater: In 1992, the EPA completed sampling of the surface water, sediment, and groundwater underlying all tailings piles. Using the sampling results, the EPA, in early 1994, selected a "No Action" remedy for surface water, sediments, and groundwater.

Environmental Progress



The removal of contaminated drums and soil has reduced the potential for exposure to hazardous wastes at the Torch Lake site while cleanup activities are being planned.

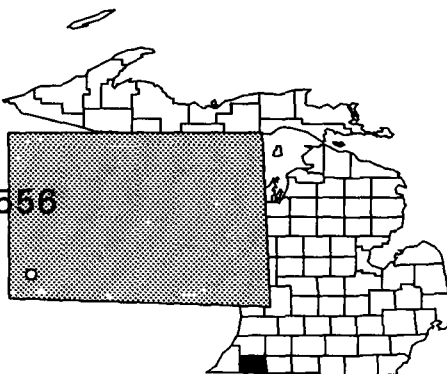
Site Repository



Portage Lake District Library, 105 Huron Street, Houghton, MI 49931

U.S. AVIEX MICHIGAN

EPA ID# MID980794556



EPA REGION 5

Cass County
Howard Township

Site Description

U.S. Aviex manufactured non-lubricating automotive fluids at its 2-acre Huntly Road Plant in Howard Township from the early 1960s until 1978. Although the plant is no longer in operation, some buildings are used for storage purposes. In 1972, an underground pipeline containing dimethyl ether was broken during excavation on the southeastern side of the plant. Within 3 to 4 months, low levels of ether had been detected in nearby residential wells. A fire in 1978 also contributed to groundwater contamination in the area. Thousands of gallons of water were used to extinguish the fire over a 2-day period. Barrels and indoor tanks of stored chemicals ruptured during the blaze. Their contents either were consumed in the fire or washed from the plant into unpaved areas, and subsequently, into the groundwater. Following the fire, residential wells were found to contain low levels of the organic liquids believed to have been released from the plant. Throughout the 1970s and early to mid-1980s, the Michigan Department of Natural Resources (MDNR) and the Michigan Department of Public Health (MDPH) collected samples from on-site and neighborhood wells. Numerous single-family homes are located near the plant. The nearest houses are located within 100 feet of the property. All residences have their own water supply wells. Farming and manufacturing are the major occupations in the area surrounding the site. The closest agricultural activity is located about 1/2 mile southeast of the site. An airport, a sewage treatment lagoon, and various light industries are located approximately 1 mile to the west of the site. There are 3 schools located about 2 miles from the site.

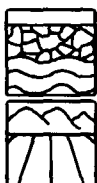
Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



The groundwater and soil are contaminated with volatile organic compounds (VOCs). Direct contact with or ingestion of the contaminated groundwater and soil pose a potential health risk. Inhaling contaminated vapors from the groundwater or soil also could cause adverse health effects.

Cleanup Approach

Response Action Status



Immediate Actions: From 1973 to 1987, U.S. Aviex provided bottled water to 32 homes with contaminated drinking water wells. U.S. Aviex also installed two new wells. In 1983, following a groundwater investigation, an on-site groundwater treatment program began. This program involves pumping groundwater out of the contaminated aquifer, treating the water by air stripping, and discharging the treated water into the St. Joseph's River system. In 1987, a State-funded alternate water supply was completed.



Entire Site: In 1988, the EPA selected the following methods to clean up the site: soil flushing of approximately 11,500 cubic yards of contaminated on-site soil, collection of on- and off-site groundwater and fluids from the soil flushing process, and on-site treatment by air stripping. Cleanup activities began in 1991. Construction of the soil flushing system was completed and operation began in the fall of 1993.

Site Facts: In early 1982, the State filed a suit against U.S. Aviex. The company was ordered to conduct a pump test as a first step to investigate and clean the contaminated groundwater. In 1986, U.S. Aviex filed for bankruptcy. EPA and the State have funded subsequent work.

Environmental Progress



By providing local residents with a safe drinking water source and treating polluted groundwater, the federal and state governments have reduced the potential for exposure to contaminated groundwater. The operation of the groundwater treatment system will continue to protect nearby residents and the environment from the contamination at the U.S. Aviex site.

Site Repository



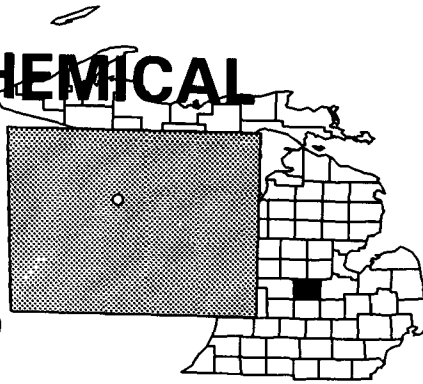
Howard Township Hall, 1345 Barron Lake Road, Niles, MI 49120

VELSICOL CHEMICAL CORP. (MICHIGAN) MICHIGAN

EPA ID# MID000722439

EPA REGION 5

Gratiot County
St. Louis



Site Description

The Velsicol Chemical Corp. (Michigan) site consists of 50 acres in St. Louis. The site was used by other companies from the mid-1800s to 1936, including a lumber mill, oil refinery, and chemical plant. Located on the site were two injection disposal wells, a dredge pond, a lagoon, a radioactive waste disposal area, and one or more drum storage areas. In 1974, the Michigan Department of Public Health (MDPH) issued a fish consumption advisory for the Pine River downstream of the site. Fish kills occurred as late as 1979, and a red leachate was observed oozing into the river from the site. Approximately 4,100 people live within 1 mile of the site. The nearest residence is less than 500 feet away. The Pine River is used for fishing, boating, swimming, and other recreational purposes. Water for drinking and other purposes is supplied from six municipal wells located to the east and southeast of the site, with the nearest well being about 1,500 feet away. The site is located adjacent to the Pine River.

Site Responsibility: This site was addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



On-site groundwater was contaminated with DDT, chlorobenzene, carbon tetrachloride, trichloroethylene, and other chlorinated compounds. On-site soil samples revealed contamination with polybrominated biphenyls, copper, chromium, zinc, and magnesium. The sediments of the Pine River were also contaminated with similar contaminants through soil erosion from the site; however, surface waters did not show any significant impacts. Potential risks existed for people who ate contaminated fish and wildlife in the vicinity of the site.

Cleanup Approach

Response Action Status



Entire Site: In 1982, the following cleanup technologies were selected: demolition, salvage, and removal of building materials and scrap; construction of a 2-foot-thick slurry wall groundwater containment system; construction of a clay cap; operation of a groundwater collection system with deep well injection; and implementation of a long-term maintenance and monitoring program. Between 1983 and 1984, containment activities, including capping the site and constructing a shallow groundwater cut-off wall, were conducted. In 1984 and 1985, the site was fenced and warning signs were posted to limit access. The State is overseeing maintenance and monitoring operations. In addition, the EPA investigated the deep aquifer and installed six deep monitoring wells and one shallow well in 1992. This investigation found that the site had not impacted off-site groundwater in either the shallow or the deep aquifers. All construction is now complete and the site is scheduled to be deleted from the NPL soon.

Site Facts: In November 1982, Velsicol Chemical Corp. agreed to a combined settlement of this site and two others in Michigan, the Gratiot County Golf Course and the Gratiot County Landfill.

Environmental Progress



By capping the site, installing a fence, posting warning signs, and building a system to prevent the movement of contaminated groundwater off the site, the potential for direct exposure to hazardous materials from the Velsicol Chemical Corp. (Michigan) site has been eliminated. The site is scheduled to be deleted from the NPL soon.

Site Repository

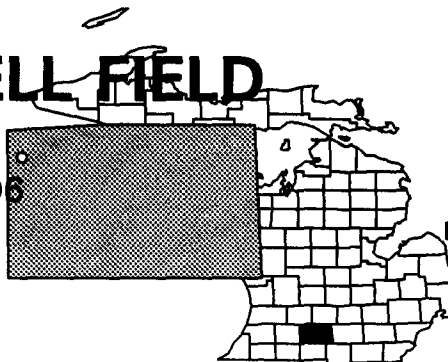


TA Cutler Memorial Library, 110 West Sahinaw, St. Louis, MI 48880

VERONA WELL FIELD

MICHIGAN

EPA ID# MID980793806



EPA REGION 5

Calhoun County
Battle Creek

Other Names:
Battle Creek Verona Well Field

Site Description

The Verona Well Field, in the northeastern corner of Battle Creek, covers 160 acres and consists of over 30 wells. During 1981, the Calhoun County Health Department discovered that the Verona Well Field, which supplies drinking water to an estimated 53,500 residents and a variety of businesses, was contaminated with trichloroethylene (TCE) and other volatile hydrocarbons. In 1984, the EPA and the Michigan Department of Natural Resources (MDNR) undertook a program to halt the spread of contamination. Three additional drinking water wells were drilled north of the existing well field, and 12 blocking wells (six currently in use) were converted to pump the water to a treatment system to create a hydrologic barrier to the advancing contaminant plume. By the fall of 1984, the actions had raised the number of clean wells to 13, and a sufficient quantity of drinking water to fulfill the maximum municipal demand was ensured.

Site Responsibility: The site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 07/16/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with volatile organic compounds (VOCs) including perchloroethylene (PCE), TCE, toluene, xylene, and vinyl chloride. There presently is limited threat of exposure to VOCs from the site as the City's drinking water is supplied by wells that are not contaminated. Source areas have been fenced.

Cleanup Approach

The site is being addressed in three stages: immediate actions and two long-term remedial phases focusing on cleanup of the three source areas.

Response Action Status



Immediate Actions: In 1983, bottled water and portable showers were provided to residences and businesses east of the Battle Creek River and west of the railroad yard until water main connections from the city system were completed. In 1984, a purge system was installed to prevent any further migration of contaminants into the northern portion of the field. A pump house was constructed and safety lights and a high-water alarm were installed. Water from the blocking wells is pumped to an air stripper/carbon adsorption system, which removes the VOCs prior to discharge of the treated water into the Battle Creek River.



Source Remediation: The following cleanup methods were implemented for the Thomas Solvent Raymond Road source area: construction of a groundwater extraction well system to contain and collect contaminated groundwater in the vicinity of the Raymond Road facility; extraction and treatment of contaminated groundwater at the existing well field air stripping facility; installation of soil vapor extraction wells to enhance the vaporization of VOCs from the contaminated soils; and continued maintenance of the groundwater extraction system. Construction of the soil vapor extraction system was completed in the fall of 1993.



Final Remedy: An investigation was conducted by the EPA to explore the nature and extent of contamination at two other contaminated source areas. The EPA selected the final cleanup approach and technologies in mid-1991. The remedies selected were soil vapor extraction at the two source areas, groundwater extraction at these areas and the construction of a second blocking well line at the main wellfield. To date, the soil vapor extraction systems have been installed and are operating, and the groundwater extraction and treatment systems are currently being designed.

Site Facts: In March 1984, Thomas Solvent Company was ordered to immediately install and operate a purge well and treatment system. In April 1984, Thomas Solvent Company filed for Chapter 11 bankruptcy. In 1992, the potentially responsible parties were ordered to design, construct and operate the final remedy.

Environmental Progress



The provision of an alternate water supply and the installation of a groundwater treatment system have reduced the potential for exposure to contaminated groundwater from the Verona Well Field site while final cleanup actions are underway.

Site Repository



Willard Library, 7 West Van Buren Street, Battle Creek, MI 49017

WASH KING LAUNDRY

MICHIGAN

EPA ID# MID980701247



EPA REGION 5
Lake County
Pleasant Plains Township

Site Description

The Wash King Laundry is located on a 2-acre site in Pleasant Plains Township and was in operation between 1962 and 1991 as a coin-operated laundry. The operation also included dry cleaning. In 1962, Wash King Laundry was granted permission to discharge soapy laundry wastewater to nearby seepage lagoons that had been constructed for this purpose. During the 1960s and early 1970s, the area experienced increasing development, and many seasonal homes were constructed in the vicinity. Dry cleaning solvents, particularly perchloroethylene (PCE), were discharged to the wastewater lagoons in the 1970s. Groundwater pollution by laundry detergent wastes was first detected in 1973. In 1977, PCE contamination of groundwater was also detected, and in 1978, Wash King Laundry agreed to cease all dry cleaning operations. Site operations ceased in 1991 when the site owner declared bankruptcy. In 1979, it was determined that approximately 30 domestic water supplies northeast of the laundromat were contaminated with PCE. Housing in the area consists of mobile homes, trailers, and cottages, most of which are utilized on a seasonal basis. Only three residences in the immediate vicinity of the site are occupied on a year-round basis.

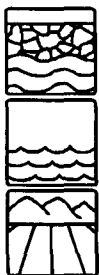
Site Responsibility: This site is being addressed through Federal and State actions.

NPL LISTING HISTORY

Proposed Date: 12/30/82

Final Date: 09/08/83

Threats and Contaminants



Groundwater is contaminated with PCE, phosphorus, sodium, and chloride. Lagoons used for laundry discharge and minor amounts of sludge contain similar contaminants as those in the groundwater, as well as lead and arsenic. Drinking or coming into direct contact with contaminated groundwater or lagoon sediments may pose a health risk.

Cleanup Approach

The site is being addressed in two stages: immediate actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Immediate Actions: In 1984, the Wash King Laundry owner installed a public water supply system to serve the affected homes and commercial establishments in the area.



Entire Site: The State conducted an investigation to determine the extent and source of contamination. The State determined that a plume of contaminated groundwater is moving northward toward the Pere Marquette River. Contaminated sediments associated with seepage lagoons formerly used on the site have been identified as sources of contamination. In early 1993, EPA and the State selected a remedy calling for the excavation of contaminated soils and pump and treat efforts to control contaminated groundwater. Design of these remedies has begun and is expected to be completed in late 1995.

Site Facts: In 1978, a court agreement was reached under which Wash King Laundry agreed to cease all dry cleaning operations and eliminate all sources of PCE contamination at the facility. In September 1993, the EPA and the State entered into a Cooperative Agreement to clean up the site.

Environmental Progress



By providing a safe drinking water source to the affected homes and businesses near the Wash King Laundry site, the party potentially responsible for contamination has reduced the potential for exposure to contaminated groundwater while design activities for the cleanup remedy are underway.

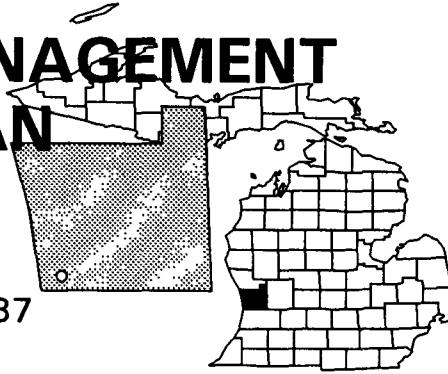
Site Repository



Pathfinder Community Library, 812 Michigan Avenue, Baldwin, MI 49304

WASTE MANAGEMENT OF MICHIGAN (HOLLAND) MICHIGAN

EPA ID# MID060179587



EPA REGION 5

Ottawa County
North of Holland

Other Names:
Jacobusses Refuse Service

Site Description

Originally, Jacobusses Refuse Service used the 180-acre Waste Management of Michigan (Holland) site landfill as a open burning dump. From 1971 to 1979, the site was used for dewatering liquid industrial wastes, including aluminum, metallic hydroxides, and activated sludge residues. The dewatering lagoons occupied approximately 15 acres of the site. Forty-three 55-gallon drums of wastes were removed intact in 1980. All dewatering sludges and on-site contaminated soils have been transferred to the Southwest Ottawa County Landfill (SWOCL), an adjacent NPL site that is now closed. An active landfill was operated at the site in the late 1960s; currently, partially buried refuse is scattered across the surface. The estimated population living within ½ mile of the site is approximately 100 people; however, the area is rapidly developing, and a new subdivision has been created near the site. Holland State Park, a popular summer vacation and recreation spot, lies less than 3 miles to the southwest of the site.

Site Responsibility: This site is being addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY

Proposed Date: 10/15/84
Final Date: 06/10/86

Threats and Contaminants



Initial sampling indicated groundwater was contaminated with volatile organic compounds (VOCs) including toluene, benzene, trichloroethylene (TCE), vinyl chloride, and the heavy metal cadmium. People could be exposed to contaminants through accidental ingestion of or direct contact with contaminated water. The site has been fenced, therefore minimizing the potential for contact with potentially contaminated on-site soils.

Cleanup Approach

The site is being addressed in two stages: initial actions and a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Initial Actions: Dewatering sludges, contaminated soils, and 43 55-gallon drums of waste were removed from the site in 1980. Perimeter sampling around the on-site gymnastics building was completed to ensure public health was not threatened.



Entire Site: The State and the potentially responsible parties are developing a work plan for the Phase I investigation to include groundwater, soil, and air monitoring. A geographical survey was conducted to fence construction so that the fencing would not interfere with geophysical instrument reading.

Environmental Progress



The removal of on-site drums, sludges, and soils in 1980 reduced the potential threat to area residents and the environment. The EPA, the Michigan Department of Natural Resources, and Waste Management of Michigan are cooperating in efforts to conduct investigations of the site for further cleanup.

Site Repository



Park Township Building, 52-152nd Avenue, Holland, MI 79727

WHITEHALL MUNICIPAL WELLS MICHIGAN

EPA ID# MID980701254



EPA REGION 5
Muskegon County
Northeast portion of Whitehall

Other Names:
Funnel Field Well #3
Municipal Well #3

Site Description

The Whitehall Municipal Wells site is located in the northeastern section of Whitehall. The site is in Funnel Field, north of Colby Street and south of the ravine and backwaters of the White River. In 1980, as a result of a routine quarterly sampling of the City's water supply, an organic solvent was detected in the water. Further testing showed that the source of the contamination was Well 3. In early 1981, the City took Well 3 off line and increased pumpage rates in Wells 2, 4, and 5 in order to provide adequate water for the city. The City later brought Well 6 on line to increase the normal water supply and decided to permanently close Well 3. Sampling of residential wells in 1982 indicated contamination of those wells with volatile organic compounds (VOCs). Affected residences were connected to the city water supply. Further investigation indicated that the source of the residential well and groundwater contamination was not related to Well 3. Approximately 3,000 people live in the City of Whitehall, and about 20 residences still rely on their private wells for potable water.

Site Responsibility: This site was addressed through Federal, State, and potentially responsible parties' actions.

NPL LISTING HISTORY Proposed Date: 12/30/82 Final Date: 09/21/84 Deleted Date: 02/11/91

Threats and Contaminants



Well 3 and surrounding monitoring wells have shown only minimal levels of contaminants, or none at all, since 1982. Contaminants found in the groundwater in the past have included perchloroethylene (PCE), trichloroethylene (TCE), and chloroform. Accidental ingestion of, inhalation of, or direct contact with contaminated water may have posed a health threat.

Cleanup Approach

Response Action Status



Entire Site: Well #3 was closed in 1981 and Well #6 was brought on line to increase the water supply. Residences that were affected by contaminated groundwater were connected to the city water supply. An investigation and risk assessment indicated there was no further public health risk involved with the site as a result of the closing of Well 3. Therefore, no further cleanup action was recommended. The Michigan Department of Public Health will continue its routine sampling of the city water supply to ensure its long-term safety. This site was deleted from the NPL in early 1991.

Site Facts: In 1985, the EPA issued a Consent Order to Shellcast, Inc. and White Lake Landfill, Inc. requiring them to install and sample monitoring wells and to provide a drinking water supply line to residents whose water supplies were threatened by hazardous substances in the groundwater.

Environmental Progress



Closing Well 3 eliminated the potential for exposure to hazardous materials at the Whitehall Municipal Wells site. The State is continuing to sample and monitor the groundwater to ensure continued protection of nearby residents and the environment.

Site Repository



Whitehall City Library, 414 East Spring Street, Whitehall, MI 49461

WURTSMITH AIR FORCE BASE MICHIGAN

EPA ID# MI5570024278



EPA REGION 5

Isoco County
Village of Oscoda

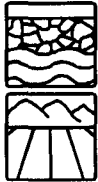
Site Description

Wurtsmith Air Force Base is a 5,223-acre site located on the northeastern part of Michigan's lower peninsula, about 2 miles west of Lake Huron. To the north and northeast of the site is Van Etten Lake; to the southwest is Allen Lake; to the southeast and east is the Village of Oscoda. Of the 5,223 acres, 1,943 acres are owned by the U.S. Air Force. The rest of the facility consists of 2,466 acres, leased primarily from the state, and 814 acres registered as easement tracts. Wurtsmith has operated since 1923 under several different names, beginning as a subsidiary of Selfridge Field called Camp Skeel. Until World War II, Camp Skeel was used for gunnery practice, winter maneuvers, and aircraft landings. According to The Emergency War Order, the primary mission of the base was to maintain full readiness to conduct strategic bombing operations worldwide. Support activities at the base included aircraft and vehicle maintenance, bombardment crew and unit training, and air refueling support. The base was renamed Oscoda Army Air Field when the Continental Air Command began using it as a transient aircraft stopover. In 1953, the base was renamed again to Wurtsmith Air Force Base when it came under the command of the U.S. Air Force Strategic Air Command. In November 1977, while collecting groundwater samples, the Air Force detected trichloroethylene (TCE) in three of the seven drinking water wells on the base. Additional samples collected in 1979 and 1980 also detected TCE. In 1985, during the early stages of base closure, an Installation Restoration Program Phase I records search for Wurtsmith identified 29 sources of concern, of which five have been evaluated: the Weapons Storage Area, two 6,000 gallon tank trailers, the Northern Landfill Area, the Building 43 Area, and the Building 5008 Area. During the 1950s and early 1960s, the Air Force used the Weapons Storage Area as a jet fighter maintenance area, possibly using TCE for degreasing and deicing the jets. The U.S. Geologic Survey (USGS) identified a TCE-contaminated groundwater plume that appeared to be emanating from this area. In 1971, two 6,000-gallon tank trailers were buried in the center of the Northern Landfill Area to create a central depository for waste solvents. The Northern Landfill Area served as a disposal pit from 1960 to 1979, into which the Air Force disposed of domestic and industrial wastes including solvents, metals, and paints. In 1987, the USGS sampled monitoring wells downgradient of the Northern Landfill area and identified TCE, 1,1-dichloroethane, 1,1,1-trichloroethane, and vinyl chloride. The Air Force used a 500-gallon underground storage tank in the Building 43 Area from 1962 to 1977 to store waste TCE, which it used as a degreaser for the maintenance of fire control equipment in the Building 5008 Area. After removing the tank, a leak was discovered near the filler pipe on the top of the tank. In addition, the Air Force apparently dumped solvents, including TCE, near buildings in the Building 5008 Area for weed control. Pumping drinking water wells in this area caused the contaminants to be drawn toward these wells, resulting in the contamination of additional drinking water wells with TCE. The Air Force officially closed the base in 1993.

Site Responsibility: The site is being addressed through Federal actions.

NPL LISTING HISTORY
Proposed Date: 01/18/94

Threats and Contaminants



The Air Force has detected TCE in the drinking water and monitoring wells at the Building 43 Area and at the Building 5008 Area. The USGS identified a TCE-contaminated groundwater plume at the Weapons Storage Area. While sampling monitoring wells downgradient of the Northern Landfill Area, where two 6,000-gallon tank trailers were buried, the USGS also detected the volatile organic compounds (VOCs) TCE, 1,1-dichloroethane, 1,1,1-trichloroethane, and vinyl chloride. The soil is contaminated with TCE. Touching or ingesting contaminated soils or groundwater poses a risk to public health.

Cleanup Approach

The site is being addressed in a long-term remedial phase focusing on cleanup of the entire site.

Response Action Status



Entire Site: Site studies of the nature and extent of contamination are being planned. These investigations will result in the selection of remedies for final cleanup of the site.

Environmental Progress



The EPA has determined that no immediate actions are necessary while site investigations are being planned.

Site Repository



Not yet established.

U.S. Environmental Protection Agency
Region 8, Denver (E-150)
1300 Broadway, Suite 1500
Denver, CO 80202-3280
0900-40000 11/01/94